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The Edict of Asoka at Sopara near Bombay

AND

Raja Harsha & Zoroastrian Morality.

A fragment of Asoka's rock edict found at Sopara, and inscription on a plate of a Hindu Raja.

[Being re-print of articles from the Sanj Vartaman Annual 1929 and the Jame Jamshed.]

Written & Published By
Rustam B. Paymaster, B.A., LL.B., Advocate, High Court; Editor, Parsee Prakash, At Chandan Wadi, Bombay.

સોપારા મધેનો રાજા અસોકનો લેખ.

—:◇:—

મુંબઇથી ૩૫ માઇલ દુર આવેલું પ્રખ્યાત સોપારાનું બંદર.

તથા

રાજા હર્ષનું ફરમાન અને પારસી ધર્મ ફરમાનનું મહત્તાપણું

કર્તા—

રૂસ્તમ બરજોરજી પેમાસ્તર,

બી. એ., એલ એલ. બી.

તે 'પારસી પ્રકાશ' ના હાલના કર્તા.

Sanj Vartaman Press, Fort, Bombay.

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મુંબઇથી ૩૫ માઇલ દુર આવેલું સોપારાનું બંદર.

બે હજાર વરસ ઉપર હિંદના પશ્ચિમ કોસ્ટાનું મુખ્ય વેપારી મથક.

મહાભારતમાં તેના વિષે ઇશારા.

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સોપારાથી મળેલો રાજા અશોકનો લેખ.

હિંદ સાથેનો ઇરાનનો આગળો સંબંધ.

અશોક અને દારાયસ.

કોંકણને લગતી કેટલીક અગત્યની શોધખોળો.

હિંદની અસલ જાહોજલાલીની યાદ.

[“સાંજ વર્તમાન” ૧૯૨૯ ના પટેટી અંક મધે

લખનાર :—રૂસ્તમ બરજોરજી પેમાસ્તર, બી. એ., એલએલ. બી.]

મુંબઇથી આશરે ૩૫ માઇલ ઉપર અને વસાઇથી ત્રણ માઇલ દુર આવેલાં બી. બી. રેલ્વેના નાલા સોપારાના સ્ટેશનથી જે નાનું અને હાલ તદન બીન અગત્યનું ગણાતું ‘સોપારા’નું ગામડું આવે છે તે આજે બે હજારથી વધુ વરસ ઉપર આખા આ દેશના પશ્ચિમ કોસ્ટાનું સર્વથી મોટું વેપારી મથક હતું જેની સાથ એક ગમ પશ્ચિમ તરફના મુલકોમાં ખુદ રોમ, અને દક્ષીણે આફ્રિકા વિગેરે મથકોનો બહોળો વેપાર હતો. એ વાત આજની તેની દરીદ્ર હાલત જોતાં કોઇના માનવામાં આવતી નથી. પણ જેઓ કાળચક્રના ફરવાથી થતા અસ્ત અને ઉદયના અચળ નિયમોનો અનુભવ ધરાવે છે તેમને એ વાત માનવાને ઝાઝી મુશ્કેલી પડશે નહીં. તે વેળા મુંબઇ ટાપુ ભાગ્યેજ હસ્તીમાં હતો. ખુદ ત્રણ સદી ઉપર આ ટાપુ થોડાક માછીમારોનું રહેઠાણ હતું. ખરૂં કહીએ તો તે સાત નાના નાના છુટા ટાપુઓના ઝુમખાથી

બનેલું હતું, ત્યારે તેની ૧૭ સદી આગમજ તેની શી હાલત હશે તે કહ્યી શકાશે. જેમ તમામ માણુસ જાતની, રાજપાટોની, તેમજ ખંડો અને શહેરો અને ગામડાંઓની ચઢતી પડતી આવે છે. એકવારના ગામડાંના મહાન જાહોજલાલીવાલાં શહેરો બને છે, અને મોટાં મોટાં શહેરો વખતના મારાથી પડતી હાલતમાં આવી તુચ્છ ગામડાં કરતાં પણ નખેતર હોય છેઃ એવોજ હાલ આપણી તરફના સોપારા તથા મુંબઇનાં બારાંઓનો બન્યો છે. સોપારા જે પશ્ચિમ તરફનાં શહેરોની રાણી હતી તે હવે લગભગ ભુલાવા લાગ્યું છે. આપણી નજદીકમાં તેની આગલી જે બલીહારી હતી તે બાબે અત્રેના 'ટાઇમ્સ ઓફ ઇન્ડીયા'માં મેં ગયા જુલાઇ માસમાં ઇશારો કીધો હતો તે બાબત અત્રે વીસ્તારીને લખવાની લાલચ થાય છે. સોપારાની પડતી, ત્યારે મુંબઇની ચહડતી, થઇ છે.

સોપારાના ખોદકામમાંથી મળેલી જીનસો.

૧૮૮૨ માં એક ખંડયેર ટેકરી (mound) ખોદતાં તેમાંથી જે અસલી ચીજો મળી આવી હતી તેનું સુંદર વર્ણન પંડીત ભગવાનલાલ ઇંદ્રજી કરે છે. તે ટેકરીની ઇંટો ઘણી મજબુત જણાતી હતી. અને તેની પથ્થરની પાકીટ (coffer) ઘણી સંભાલથી બનાવવામાં આવી હતી. તે પાકીટ માહેલી કાચની પેટી (Casket) પણ સુંદર રીતે બનાવેલી જણાઇ હતી. વળી ત્યાંની ત્રાંબાની મુર્તિઓ હાલના કરતાં વધુ કળાથી બનાવેલી માલમ પડી. ત્યાંથી મળેલા ચાંદીના સિક્કા સોનીઓની કારીગરીનો અચ્છો ખ્યાલ આપતા.

મારી બે દાહેકા ઉપર ત્યાંની ખાસ મુલાકાત.

આજ બે દાહેકા ઉપર મેં જાતે એ નાલા સોપારા તથા તેની આસપાસની જગાઓની મુલાકાત આ અશોકના લેખ બાબે કીધી હતી પણ કમનસીબે તેમાં મને કશું મળી શકયું નહીં. બોમ્બે હીસ્ટોરીકલ સોસાયટીના માર્ચ ૧૯૨૮ ના જર્નલના પા૦ ૬૫–૭૭ માં આ સોપારાના અસલી પ્રખ્યાત વેપારી મથક વિષે તેના ઉમંગી સેક્રેટરી મી૦ બ્રેઝ ફરનાનડીસે એક કીંમતી લખાણ કરી આપણી તર્કને મજબુત ટેકો દાખલા દલીલો સાથ આપ્યો છે.

બચી રહેલો પહાડી લેખ.

આ પહાડી લેખ આખો મળી શકતો નથી. તેનો એક ટુકડોજ જળવાઇ રહ્યો છે. કદાચ બાકીના ભાગના પથરા કાંઇ અલફાતુ ઉપયોગમાં લેવામાં આવ્યા હશે. આ ટુકડાનો, તરજુમો અત્રેના સરકારી અસલ બાંધકામ ખાતાંએ કીધો છે.

આ લેખની હાલત.

ઉપર કહ્યું તેમ સોપારાના અશોકના પાહાડી લેખનો ફકત એક ટુકડોજ હાલ બચવા પામ્યો છે તેથી કુદરતી રીતે એ ટુકડા ઉપરનું લખાણ ટુકું અને અધુરૂં છે, પણ આપણને એટલો સધ્યારો મળે છે કે ગીરનાર મધે જે અશોકનો ૮ મો લેખ મળ્યો છે તેને બરાબર આ સોપારાનો લેખ મળતો હોવાથી આ સોપારાનો લેખ જો આખો મળતે તો તેમાં શું લખેલું હતું તે જાણી શકાય છે.

તેનો બચેલો ભાગ.

જે કેટલોક ભાગ એ લેખનો બચી રહેલો છે તે હું હવે આપીશ. તેની પહેલી ચાર લીટીઓ તો મળી શકી નથી કારણ તેનો ઉપલો ભાગ ગુમ થયો છે.

પાંચમી લીટીમાંથી ફકત બેજ શબ્દો બચવા પામ્યા છે જે 'નીખામીથા સમ' એ શબ્દો છે, નવ અક્ષર ગુમ થયા છે.

૬ ઠી લીટીમાંથી માત્ર ૪ શબ્દો બચવા પામ્યા છે જે હેઠળ મુજબ છે. "હેતા ઇઆમલ હોટી બમ્તા." અગીયાર અક્ષરો ગુમ થયા છે.

૭ મી લીટીના પાંચ શબ્દો બચ્યા છે જે નીચે મુજબ છેઃ–

ચ વુધાનમ દસાને હીરામનાપટીલીધાને ચ.

૮ મી લીટીમાંના બે શબ્દો જે બચ્યા છે તે "મનુસાથી થીમ" છે. એના ૧૧ અક્ષર ગુમ થયા છે.

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૬ ઠ્ઠી લીટીના જે ચાર શબ્દ હાલ હૈયાત છે તે "યે રતી હોટી દેવા" છે. એ લીટીના પણ ૬ અક્ષર ગુમ થયા છે.

૧૦ મી લીટી નાની છે. તે તદ્દન અળગી બચવા પામી છે. તેના ત્રણજ શબ્દો છે જે નીચે મુજબ છેઃ—

જીના માગે આને.

એટલે ત્યારે ઉપલો લેખ ૧૦ લીટીનો હશે જેની છ લીટીઓ પણ પુરેપુરી બચી શકી નથી. છતાં તેની ભાષા તે ભાષા શીખેલાઓ આ પથ્થરના ટુકડા પરથી સહેલાઇથી ઉકલાવી શકે છે. તેના અક્ષરો પાલી લીપીને મલતા લાગે છે.

આ લેખ મળવાથી શો સાર નીકળે છે?

આ સોપારાના લેખનો એક ટુકડો બચવા પામ્યો છે તે પણ ગણીમત છે. જો તે મળી શકતે નહીં તો પછી કોઇને એમ કહેવાની હિંમત થતે નહીં કે સોપારા જેવાં હાલના એક નાનકડાં બિન અગત્યનાં ગામડાંમાં મહાન અશોક રાજાના તમામ હિંદ મધેના ૧૪ લેખોમાંનો એક આવ્યો હોય. વળી આ બચેલા પાહાડી પથ્થરના ટુકડા ઉપરથી એટલું પણ સિદ્ધ થાય છે કે એ હજારથી વધુ વરસ ઉપર હિંદના પશ્ચિમના કોસ્તા ઉપર સોપારા એક મોટું વેપારી મથક હોવું જોઇએ કે જેનો સંબંધ પ્રદેશો સાથે ઘાડો હોવો જોઇએ બલ્કે તે પશ્ચિમ હિંદના શહેરોની એક રાણી હતી. ખાસ કરીને મુંબઇગરાઓને તો આ શોધથી વિશેષ સંતોષ માનવાનો છે કે જે કોંકણ મધે આપણી આ લાડકી અલબેલી આવી છે તેજ કોંકણ મધે આ સોપારા પણ હતું અને વળી અશોકના હાથ તળેના એકજ રાજાના તાબામાં જેમ મુંબઇ તેમજ સોપારા હતું. તે જમાનામાં મુંબઇ ટાપુ તો કશી ગણત્રીમાંજ ન હતો.

આ લેખમાં શું લખાયું હશે?

હવે આપણે કલ્પના કરી શકાયે છીયે (કે જેને માટે આપણી પાસે સબળ કારણો છે) કે આ સોપારાના લેખમાં શું કોતરાયું હશે. તેના જે શબ્દો બચવા પામ્યા છે અને જે મેં ઉપર ટાંકયા છે તે ઉપરથી (આગળ કહ્યું તેમ) ખુલ્લું જણાય છે કે તે જુનાગઢવાળા ગીરનારના લેખનેજ મલતો, તે બલ્કે બરાબર ગીરનારનાજ જેવી જણે તેની આબેહુબ નકલ, છે, એટલે ત્યારે ગીરનારના સંપૂર્ણ બચેલા લેખ મધે જે કોતરાયું છે તેનો આપણ ઇંગ્રેજીમાં તરજુમો આપીશું:—

" For long, kings have started on pleasure tours where were (which consisted of) the chase and other such amusements. For this reason a religious tour was started by the ten-years-installed king Piyadasi dear to the gods, who had reached true knowledge. In which tour this happens: visiting and making gifts to Brahmins and Budhist monks, visiting old men, making gifts of gold, looking after the law and the people, giving instruction in religion and making inquiries as to (the state of) religion. By such means, this (religious tour) becomes a source of great pleasure in other parts (or dominions) of king Piyadasi dear to the gods."

ઉપલા લેખ ઉપરથી આપણને શું જાણવાનું મળે છે?

વાંચનાર પુછશે કે ઉપલો લેખ, જેનો જેનો તરજુમો અત્રે આપ્યો છે, તેમાં એવી તે શું ઐતિહાસિક ખબર મળે છે કે જે કારણને લીધે તેને આટલી અગત્ય આપવી જોઇએ. ખરૂં છે કે હાલ તેની કીંમત ઝાઝી લેખાય નહીં. પણ આશરે સવા બે હજાર વરસ ઉપરનો તે એક લેખ હોવાથી તે પુરાણા જમાનાને લગતી જેખી કાંઇ વિગતો મળે તે જો તમે હાલના જમાનામાં પણ શોધી કાઢી જાળવી રાખી ન હોય તો પાછળથી તે નાબુદ થતાં એટલી પણ

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ખબર આપણા મનુષ્ય હાથમાંથી જતી રહે. અલબતાં એથી પણ આશરે ત્રણ સદી આગળના મહાન શહેનશાહ દારાયસના પાહાડ ઉપરના ત્રણ ત્રણ ભાષાઓના લંબાણ લેખ આગળ આ અશોકના લેખ કુચ બીસાદના નથી. દારાયસ તે મધે અનેક બાબત ઉપર અગત્યની ખબરો કોતરાવી તે જગજાહેર કરી લગભગ હંમેશને માટે મુકી ગયો છે. અશોકના લેખો વિષે ઘણાકો એવું માને છે કે તેમાં ફકત મનુષ્ય દયાનાજ શિક્ષણ સમાયલાં છે. એ સામાન્ય વિચાર ખરો નથી તે ઉપલા ઇંગ્રેજી તરજુમા ઉપરથી સિદ્ધ થાય છે.

ઉપલા સવાલની તપાસ.

આ લેખ જે આપણી બહુજ નજદીક (ફકત પાંત્રીસ માઇલ દુર) સોપારામાંથી મળ્યો છે તે ઉપરથી તે જમાનાના રાજા અશોક તથા તેના વખતને લગતું કેટલુંક જાણવાનું મળી શકે છે કે જેના પાયા ઉપર તવારીખનવેશો મોટી મોટી ઇમારતો બાંધી શકે છે, કે કાંઇ ગુમાઇ ગયલી જરૂરી કડી મેલવી જોઇતી સાંકળને તૈયાર કરી શકે છે. અશોકના ઉપલાં નાના લેખમાંથી બીજું ઉપરાંત નીચલું જાણવાને બની શકે છે.

(૧) આજ સવા બે હજાર વર્ષ ઉપરના રાજાઓની શેકારગાહની મોજ (એવીજ કદીમ ઇરાનના બાદશાહો પણ ભોગવતા.)

(૨) પણ રાજા અશોકે પોતે એક ધાર્મિક મુસાફરી માથે લીધી અને તેમ કરી તેણે (જાનવરોનો શીકાર કરવાને બદલે) બ્રાહ્મણો અને બુદ્ધિસ્ટ સાધુઓની તથા બુદ્ધાઓની મુલાકાત લીધી તથા તેમને સોનાની ભેટો કીધી અને તે સાથ રૈયતનું તથા કાયદાનુંજ નહીં પણ ધર્મનું રક્ષણ કીધું. એજ રીતે તે આ ખરી ધાર્મિક મુસાફરી કરી મોજ મેલવી દેવતાઓનો વહાલો થયો.

મહાભારત તથા રામાયણ મધે સોપારાને પવિત્ર સ્થળ જણાવ્યું છે.

હિંદુઓના અતિ જુના ગ્રંથ મહાભારતમાં ખ્રીસ્તી સનેની પણ ૧૪૦૦ વરસ અગાઉ એટલે આજ આશરે ૩૨૦૦ વરસ ઉપર આ સોપારાને 'સુરપારક'ના નામ હેઠળ એક ઘણા પવિત્ર મથક તરીકે જણાવ્યું છે અને ઘણી વેળા એક મોટાં બારાં તરીકે રામાયણ તથા બીજાં અસલ પુસ્તકોમાં લેખાયું છે. વળી ગૌતમબુદ્ધના વખતના બનાવો વિષેના જે લખાણો થયા છે, તેમાં પણ આ 'સોપારા' નામ આવે છે.

'સોપારા' શબ્દનું મુળ.

આ 'સોપારા' શબ્દ આપણા ચોખા અનાજ વીણવાના 'સુપરા' સંસ્કૃત શબ્દ ઉપરથી નીકળેલો કહેવાય છે. એ મથક 'કોકણ'માં આવ્યું છે.

કોકણની જમીન કેમ બની ?

આપણો માનીતો મુંબઇ ટાપુ જે 'કોકણ'માં આવ્યો છે તે કેવી રીતે હસ્તીમાં આવ્યો તેને લગતી દંતકથા જાણવાજોગ છે. કહે છે કે કોકણને પરસરામે નીચે મુજબ બનાવ્યું હતું. અસલ બ્રાહ્મણો તથા ક્ષત્રીયો વચ્ચે ચાલુ લડાઇઓ થતી. લડવૈયા ક્ષત્રીઓએ બ્રાહ્મણોને હરાવી ગુફાઓ અને જંગલો ભણી હાંકી કાઢયા. આવી હાલત જોવાઇ નહીં શકાવાથી વિષ્ણુનો છઠ્ઠો અવતાર એક બ્રાહ્મણના દીકરા તરીકે જનમ્યો, જેનું નામ જમદગ્ની હતું. આ અવતાર પાછળથી પરસરામ તરીકે ઓળખાવા લાગ્યો; 'પરસુ'નો અર્થ કોદાળી (ફરસી) થાય છે કે જે એ દેવનું માનીતું હથીઆર હતું.

આ અવતારે સહ્યાદ્રિ પહાડોની ટોચે ઉભા રહી મહાસાગરમાં પોતાની કોદાળી નાખીને પાણીને પાછળ હઠવાને હુકમ કીધો. સમુદ્ર તેથી હઠયો અને આશરે ૩૦ માઇલની પોહોળાઇની જમીન બની જે જમીનને 'કોકણ' કરીને કહે છે. આ કોકણનો કબજો બિચારા મારી હઠાવેલા બ્રાહ્મણોએ લીધો. બીજી દંતકથા મુજબ પરશરામે એક તીર પોતાના કામઠાંમાંથી ફેંકી આ કોકણની જમીન બનાવી.

પરશરામ તે ફરામરોઝ.

કેટલાકોનું માનવું એવું છે કે આ પરશરામ તેજ આપણો ઇરાની પહેલવાન

ફરામરોઝ હતો જે હિંદ ઉપર ચઢાઇ લાવ્યો હતો.

રામબાણથી બનેલો ઉનાઇનો ઝરો.

એવામાં ઇશ્વરી અવતારના પ્રાકમોથી અનેક મહાન બનાવો બનેલા નોંધાયલા છે. આપણાથી સવાસો માઇલ ઉપર આવેલા ઉનાઇના ગંધકના ઉના પાણીના ઝરાની ઉત્પતી, રામનું સીતાને લઇને આ તરફ આવવું અને ત્યાં રામચંદ્રજીના અચુક બાણથી અનાવલાઓને બ્રાહ્મણ બનાવવા માટે નહવડાવવા સારૂં વહેતા થયલા ઝરાથી થયલી કહેવાય છે, જે વિષે મેં આગળ ૧૯૧૩ માં લખાણો કરેલાં હોવાથી હાલ અત્રે થોભીશ નહીં.

કોંકણની ઉત્પત્તી બાબે બીજી દંતકથા.

કોંકણની ઉત્પ-તી બાબે બીજી દંતકથા એક ખ્રિસ્તી પાદરી ફાધર જેકોબો ફેનીશ્યોએ જણાવી તે એવી છે કે પરશરામે ત્યાં દહેરાં બાંધવા માંડયા પણ મહાસાગર છેક આપણા ઘાટો સુધી લંબાયલો હતો તેથી દહેરાં માટે જગા મળી શકી નહીં. આથી આ દેવે આતશ ઉપર ભોગ આપવાની ક્રિયા કરી. આમાંથી એક 'સુપો' નીકળી આવ્યું (જેને આપણે અનાજ વીણવાનું 'સુપડ'' કહીયે છીયે) એ સુપડ તેણે મહાસાગર ઉપર બે વાર નાખ્યું જેથી સાગરના પાણી વધુ અને વધુ પાછળ હટતાં ગયાં. જ્યારે ત્રીજીવાર પરશરામે આ માફક સુપડ વીણવા માંડયું ત્યારે પાણીના દેવ વરૂણે સફેદ કીડીના અવતારમાં આવી તે સુપડાંને કોતરી ખાધું. આવી રીતે મહાસાગરને 'સુપા'ની મારફતે હઠાવી જમીન બનાવી ત્યાં પરશરામે બ્રાહ્મણો માટે દહેરાં બાંધ્યાં અને તેને લોકો 'સુરપારક' કહેવા લાગ્યા.

એ ઉત્પત્તિની એક ત્રીજી કથા.

વળી પુરાણ (સ્કન્દા) મધે આ સોપારાની ઉત્પત્તિની એક ત્રીજી કથા આપી છે જે એવી છે કે પરશરામે શહેનશાહ કારતવ્ય સહસ્રારજુંનને હરાવી ક્ષત્રીયોને જડમૂળથી ઉખેડી નાખી તેમની જમીન બ્રાહ્મણોને આપી. એમ કરતાં પરશરામની પોતાની પાસે કાંઇ જમીન રહી નહીં તેથી તેણે વરૂણને અરજ કીધી કે તેની પોતાની પાસની જમીન મને આપવી, પણ વરૂણે તેમ કરવા ના પાડવાથી પરશરામ સાહાયદરી પર્વતોને મથાળે ગયો અને વરૂણના વાંધા છતાં તેણે એક નહીંને ચૌદ તીર માર્યાં. જ્યાં જ્યાં તે તીર પડયાં ત્યાં ત્યાં પાણી હઠયાં અને તેની જે જમીન બની તેના સાત ભાગ થયા. આ સાત ભાગોમાનો એક કોંકણનો હતો. એ ઉપરથી પણ એવું બતાવવામાં આવે છે કે બ્રાહ્મણો માટે આ કોંકણની તથા બીજી છ આસપાસની જગાઓ બની.

વૈતરણા નદી.

ઉપલી કથાઓપરથી આટલું તો સિદ્ધ થાય છે કે આ સોપારાની જમીન જે પરશરામે પોતાના સુપરાંની કે બાણની મદદથી કે વરૂણની સહાયતા વડે બનાવી તે બ્રાહ્મણો માટેજ હતી. આ તેનો પુરાવો બીજી રીતે એ મળે છે કે સોપારા બધે રામનો ખબોચ્યો (Rama's Pool) આવે છે અને તેની પડોસમાં પવિત્ર વૈતરણા નદી વહે છે.

હવે આ વાત તો સિદ્ધ થયલી છે કે જે જે જગાએ પવિત્ર સ્થળો હતાં ત્યાં આર્યોના સર્વથી જુના મથકો હતાં. તેજ મુજબ ત્યારે આ વૈતરણા નદી તથા તેની આસપાસની જગાઓ બહુજ અસલના આર્યોની હોવી જોઇએ. આ હિન્દુસ્તાનની વૈતરણા નદી યુનાનીઓ સર્વથી જુની નદી તરીકે ઓળખાવે છે. 'વૈતરણી' એટલે સાચું બોલનાર' તેને પણ પરશરામે હસ્તીમાં આણેલી કહેવાય છે કે જેનું કામ આ કળીયુગના પાપોને ધોવાને માટેનું ઠેરવ્યું હતું, અને ત્યાં રૂશીઓ નાહવા તથા ક્રિયા માટે આવતા હતા.

વૈતરણા નદી અને દંતોરા ભણી દાદીશેઠ ધર્મશાળા.

આ વૈતરણા નદી (જે આ લખનારે જાતે જોઇ છે તે) કાંઇ મુંબઇથી ઝાઝી દુર નથી. તે અત્રેથી ૪૦ માઇલથી પણ ઓછે છેટે આવી છે. ત્યાં દંતોરાનું બંદર હતું, સંજાન તથા તેની ઉતરે જવા માટે

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જ્યારે બૅલ ગાડાંથી મુસાફરી થતી ત્યારે મુસાફરોને આસાયસ લેવાને માટે આ તરફ શેઠ અરદેશર દાદીભાઇ (દાદીશેઠ) એ ૧૮૦૬ના સાલમાં એક ધર્મશાળા બંધાવી હતી જે હાલ પણ ત્યાં જોવામાં આવે છે અને જ્યાં એક પારસી રખેવાલ તેની સંભાળ માટે આજે પણ દાદીશેઠ કુટુંબે રાખ્યો છે.

સોપારા ક્યાં આવ્યું છે?

ત્યાંની વસ્તી ઇરાનથી પણ આવેલાઓ ધરાવતી.

આ સોપારા વીરારની દક્ષિણે આવ્યું છે. વસઇ રેલ્વે સ્ટેશનની ઉતર-પશ્ચિમે ફકત સાડાત્રણ માઇલ ઉપર તે આવ્યું છે અને ત્યાંની હાલની વસ્તી હિંદુ, મેહોમેદનો તથા ખ્રીસ્તી ગેહુતોની છે. કહે છે કે ત્યાંના આ મુસલમાનોમાંના ઘણા જે આરબો તથા ઇરાનીઓ નાશભાગ કરીને અથવા ધંધાને અર્થે તે ભણી આવ્યા હતા તેના વંશજો છે.

પુરાણના જમાનાનું સોપારા.

હિંદુઓની દંતકથામાં આ સોપારાને રાજગાદીનું મથક અને ઘણુ લાખ માણસોની વસ્તીના શહેર તરીકે લેખાવ્યું છે. તેના તે વેળા ૧૮ દરવાજા હતા અને સુખડના કોતરકામના શણગાર સાથ ત્યાં ગૌતમ બુદ્ધનું એક દહેરૂં હતું જેના વિસ્તાર એક હજાર વાર અને ઉચાઇ ૫૦૦ ફીટની હતી.

સોનાના સિક્કા.

અત્રે અસલ ઝમાનામાં સોનાના શિક્કા ચાલતા અને ઘણા માતબર વેપારીઓ હતા. ત્યાં બૌદ્ધ ધર્મ ચાલતો અને ખુદ ગૌતમ બુદ્ધ હવા વિમાનમાં અહીંના દહેરામાં પધારેલા કહેવાય છે. એ રીતે અસલના જમાનામાં સોપારા એ મોટું ધાર્મિક તથા વેપારી મથક હતું.

અશોકના ખડક ઉપરના લેખ.

થાણા કોસ્તાની તવારીખમાં જે સર્વથી જુની બાબત જણાવેલી છે તે રાજા અશોકનો ખડક (boulder) ઉપર કોતરેલો લેખ છે જે ઇસુ ક્રાઇસ્ટની ૨૨૫ વરસ આગમજનો કહેવાય છે,

હાલ અશોકનો મોટો પથ્થર ક્યાં છે?

આપણે જોયું તેમ ઉપલા ખડકના લેખવાળો અશોકનો પથ્થર ઇ. સ. ૧૮૮૨ ના એપ્રાલ માસમાં શોધી કાઢવામાં આવ્યો હતો.

શું આ ઉપરથી એટલું અનુમાન થઇ ન શકે કે જે સોપારા મધેથી આ લેખ મલી આવ્યો છે તે તે વેળાના કોકણનું એક રાજધાનીનું શહેર હતું અને ત્યાંના બારામાં લોકોની જબરી આવ જાવ હતી? આગળ વધીને એમ પણ શું નહીં કહી શકાય કે તે આ પ્રથમ હિન્દુસ્થાનનું એક મુખ્ય બારૂં હતું. જો તેમ ન હતે તો અશોક જેવા હિંદના મહાન રાજાના જે ફકત ૧૪ સતંભો જગે જગ મેલાયા છે તેમાંનો એક અત્રે સોપારા મધે શા માટે મેલતે? એટલું તો ત્યારે તદન ખુલ્લું છે કે આખા દેશના તે વેળાનાં ૧૪ મુખ્ય શહેરોમાં સોપારા એક હતું.

એ લેખ હાલ મોજુદ છે.

આપણે જોયું છે કે સોપારા મધેનો રાજા અશોકનો સવા બે હજાર વર્ષ ઉપર લેખ હતો તે બાબે હવે કશો શક રહ્યો નથી. ખુદ આ લેખનો એક ટુકડો જે પંડીત ભગવાનલાલની મહેનતથી શોધી કાઢવામાં આવ્યો હતો તે ટુકડો આપણા પ્રીન્સ ઓફ વેલ્સ મ્યુઝીયમમાં રાખેલો છે જે તેનાં ભલા કસ્ટોડીયન મી૦ આચાર્યની મહેરબાનીથી હું જોવા પામ્યો છું.

એ લેખની નકલ.

આ લેખની નકલ પણ મેં મેળવી છે. જેનુ ચિત્ર જેઓ ચાહે તેમને બતાવવા હું ખુશી થઇશ. તેની લીપી આપણી ગુજરાતી કહો કે દેવનગરી ભાષાને ઘણેક દરજ્જે મલતી છે. તેના અક્ષરો ઉકેલવા કાંઇ ઝાઝા મુસ્કેલ નથી. એ લેખ હાલ મોજુદ છે એટલે જે મેં આગળ છાપાદ્વારે જણાવ્યું હતું કે સોપારાનું બંદર બેહજાર વરસ ઉપર વધુ મોટું અને પ્રખ્યાત હતું તે તર્કને મજબુત ટેકો મળે

છે. આ નકલ ઉપરથી આ સોપારા મધે અશોકનો લેખ હોવા બાબે કશો પણ શક રહ્યો નથી.

બાઇબલનું 'ઓફીર' તેજ સોપારા.

માત્ર એટલીજ બાબતનો મતફેર છે કે આ સોપારા તેજ પવિત્ર બાઇબલમાં જણાવેલું 'ઓફીર' હશે કે કોઇ બીજું મથક ? આ 'ઓફીર' તે હતું કે જેનું સોનું પાદશાહ સોલોમનનાં મહેલની કારીગરી માટે વાપરવામાં આવ્યું હતું એમ બાઇબલમાં નોંધાયું છે. હિંદમાં સોનું પુષ્કળ મળતું તે ખુદ મીલટનની પેરેડાઇઝ લોસ્ટમાં પણ આડકની રીતે નોંધાયલું છે. ત્યાં જણાવ્યું છે કે:–

"Or where the gorgeous East with richest hand.

Showers on her Kings barbaric pearls and gold."

બુધીસ્ટોના લખાણોનો ટેકો.

બુધીસ્ટોના લખાણો પણ આ અનુમાનને ટેકો આપે છે. તે મુજબ તો ઇ. સ. પુર્વે ૫૪૦ માં બુધના જમાનામાં એ એક રાજ મથક હતું અને તે વેપારનું એક મધ્યબિંદુ હતું.

કેનેરીના ગુફા.

આપણી બહુજ નજદીક બરોલી તરફ કેનેરીના ગુફાઓ આવેલા છે. ત્યાં ઇ. સ. ની ૧૦ મી સદીમાં આપણા ઇરાની ભાઇઓ ઉતરી પડ્યા હતા અને ત્યાં પોતાના ઇરાની નામો પહેલવી જબાનમાં લખી ગયલા મોજુદ છે.

એ ગુફાઓમાં મળતો પુરાવો.

એજ કેનેરીના ગુફા મધે એક લેખ એવો કોતરાયલો કહેવાય છે કે જેમાં 'સુપારક' જીલ્લામાં બનેલો એક બનાવ જોવામાં આવે છે. વળી ત્યાં બીજું કોતરકામ જણાવે છે કે સુપારકના એક વેપારી નામે સમીકાએ એક પાણીની ટાંકી ભેટ આપી હતી.

કાલી કેવ્સમાં મળતો પુરાવો.

વળી આપણી નજદીકના કાલી કેવ્સ મધે એક મોટા થાભલાં ઉપર બે લેખ મળે છે જેમાંનો એક ઇસુ ક્રાઇસ્ટની એક સદીની આગમજનો છે જેમાં સોપારકના સતીમીતા નામના એક શખ્સે એક થંભ આપેલો જણાવ્યો છે.

નાસકના ગોફાઓ.

એજ માફક નાસિકના ગુફાઓ મધેના કોતરકામ જે ક્રાઇસ્ટ પછીની પહેલી સદીના છે તેમાં સોપારાને 'સોપારગ' તરીકે લેખાવ્યો છે. વળી નાના પાસની એક ટાંકીની નજદીક એક લેખ મળી આવ્યો છે કે જે મધે જણાવ્યું છે કે તે ટાંકી સોપારયાના રહેવાસી ગોવીન્દાસે બનાવી હતી.

આ સોપારા કેટલું જુનું હશે!

અસલ ઇરાન સાથ વેપાર.

આપણે જોયું છે કે આજ લગભગ બાવીસ સો વરસ ઉપરના રાજા અશોકના જમાનામાં તો સોપારા એક મચી રહેલું સુખી વેપારી શહેર હતું. તેમ થવાને તેણે સદીઓ તો લીધેલી હોવીજ જોઇએ. તે સંબંધી એક બીજો પુરાવો મળે છે, અને તે એ કે અશોકની ઘણી આગમજ હિંદુસ્તાનનો પશ્ચિમ દેશ સાથ વેપાર ચાલતો હતો. એ વેપાર છેક ઇ. સ. પુર્વે ૨૫૦૦ થી એટલે આજ સાડીચાર હજાર વરસથી ઇ. સ. પુર્વે ૫૦૦ ના બે હજાર થી વધુ વર્ષ ઉપર ઇજીપ્ત, ફીનીશ્યા અને બેબીલોન સાથ ચાલુ હતો અને ઇ. સ. પૂર્વ ૨૫૦ થી ઇ. સ. ૨૫૦ વેરની પાંચ સદી સુધી તેનો વેપાર યુનાન તેમજ આપણા અસલ ઇરાન ભણીના પારથયનો સાથ હતો.

ઇરાન સાથ સોપારાને થયેલા કોલકરાર.

વળી ઇરાન સાથ સોપારાને વેપારી કોલકરાર ઇ. સ. ૨૫૦ થી ૬૪૦ ની લગભગ ચાર સદીઓ વેર, એટલે આપણું ઇરાનનું રાજ ગયું ત્યાંવેર, થયા હતા. એજ માફક આરબ અને ઇરાની મુસલ-

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માનો સાથ વેપાર ઇ. સ. ૭૦૦ થી ૧૨૦૦ ની પાંચ સદીઓ વેર હતો.

ઇરાન મધે હીંદુઓ.

વીલ્ફર્ડ મુજબ ઇસવી સનની સાત સદી પુર્વે હિંદુ જોશીઓ ઇરાન અને પેલેસ્ટાઇનમાં હતા. તે હિંદુઓ હિંદુસ્તાન મધેથી નહીં તો કયાંથી જઇ શકે? હિંદના આ સોપારાવાળા પશ્ચિમ કોસ્ટાથીજ તેઓ સહેલાઇથી જઇ શકતા.

ઇરાનના શાહના લશ્કરમાં હીંદુઓ.

વળી એવું પણ નોંધાયલું છે કે ઇ. સ. પુર્વે ૪૮૦ માં હખામની પાદશાહ ઝર્ઝીસના લશ્કરમાં હિંદુઓ હતા એટલું જ નહિં પણ ઇ. સ. પુર્વે ૨૭૫ માં કારથેજીઅનો તથા રોમનોનાં દેશમાં હિંદુઓ હાથીના માવત હતા. એજ માફક યુનાન દેશમાં હિંદુ નોકરો હતા. અને ખુદ જરમનીમાં હિંદુ વેપારીઓ હતા જે સબળો તેમના સાહસીકપણાનો પુરાવો આપે છે.

ઇરાની અખાત સાથ અસલ હીંદનો વેપાર.

કહે છે કે અન્દુબ્બાર નામે એક હિંદુસ્તાનના વતનીએ એબીલોન્યનોને હુનરો શીખવ્યા હતા. ઇ. સ. પુર્વે ૭ મી સદીમાં એબીલોન્યન રાજા નેબુકદનાઝરે ઇરાની અખાતપર પુશ્તા તથા ડક્કા બાંધ્યા હતા કે જેથી તેની રૈયત હિંદુસ્તાન તથા સીલોન સાથ વેપાર કરી શકે.

પશ્ચીમ હીંદનો વેપાર.

અશોકના વખતમાં હિંદુસ્તાનના પશ્ચિમ કિનારા ઉપર વસનારાઓ ઇજીપ્ત સાથ સીધો વેપાર કરતા હતા. ઇજીપ્તના વાહણો રાતો સમુદ્ર પસાર કરી એડન, ઇજીપ્ત, પુર્વ અરબસ્તાનનો મીનારો ઓળંગી ઇરાની અખાત પસાર કરી કરાંચી થઇ ત્યાંથી હિંદુસ્તાનના કિનારા ઉપર વેપાર અર્થે આવતા. યાહુદીઓના પાદશાહ સોલોમનના દરિયાઇ કાફલા આ પુર્વ તરફ આવવા વિષે બાઇબલમાં ખુલ્લુ લખેલું છે (3 Kings 1x 28.) કે તેઓ ઓફીર (Ophir)થી રાજા સોલોમન માટે ૪૨૦ ટેલન્ટસ સોનાના લાવ્યા. વળી બીજી ગમ જણાવ્યું છે કીરામના રાજાનું નૌકાખાતું ઓફીરથી સોનું તેમજ કીંમતી ઝવેરાત વિગેરે લાવ્યું. એ ઉપરાંત ત્યાંથી હાથીદાંત, વાંદરા તેમજ મોર પણ લાવવામાં આવ્યા હતા.

આ 'ઓફીર' તે કયું?

હવે ઉપલું જે બાઇબલમાં 'ઓફીર' (Ophir) કહ્યું છે તે કયું? એજ જગાને બાઇબલની બીજી જગ્યા (Genesis x 30) માં "Sephar" તે પુર્વના એક પાહાડ તરીકે જણાવ્યું છે. જુદા જુદા લખનારાઓ આ 'ઓફીર'ને જુદા જુદા મથક તરીકે ઓળખાવે છે. કોઇ તેને અરબસ્તાનનું કે કોઇ આફ્રિકાનું સફાલા, તો કોઇ તેને સીંધુ નદી આગળ અને કોઇ જોવા હોય એમ સુચવે છે. આફ્રીકાનું સોફાલા તો એ હોયજ નહી એમ તેની દિશા ઉપરથી સાબિત થાય છે. પણ તે આપણું સોપારા હોવાની તરફેણમાં વધુ દલીલો આણી શકાય. એમાંની સોપારાની અસલી બ્રાહ્મણ અને બુધીસ્ત વિખ્યાતી આપણે આગળ જોઇ છે.

'સોપારા' અને 'ઓફીર'નું મળતાપણું.

'ઓફીર'ને બાઇબલના લખનારાઓએ 'સોફીર' લખ્યું છે. હવે કેટલાકો ઇજીપ્તની ભાષામાં હિંદુસ્તાનને "સોફીર" તરીકે લેખે છે. આપણી તરફ ગામડયાઓ 'સરખો' બોલવો હોય તો સ ને બદલે હ વાપરી 'હરખો' બોલે છે, અથવા તો હ 'અક્ષર' કાઢી નાખે છે એજ માફક તે વેળાના લોકોએ 'સોપારા'નો 'હોપારા' કે 'ઓપારા' શબ્દ કીધો હોય એમાં નવાઇ કાંઇ નથી.

હીંદની પેદાયશોની દલીલ-હીંદમાંથી દારાયસે લીધેલું સોનું.

વળી ઉપર જણાવેલી જે ચીજો સોલોમન માટે ઓફીરથી લાવવામાં આવી—જેવી કે સોનું, કીંમતી ઝવાહેર, સુખડ, હાથીદાંત, વાંદરા તથા મોર, એમાંની એકેએક આ હિંદુસ્તાનની પેદાયશ છે અને નહીં કે આફ્રીકાની. સોનું છેક અસલથી હિંદુસ્તાનમાં મળતું. હીરોડોટસ મુજબ ઇરાનનો

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પાદશાહ દારાયસ હીંદમાંથી એટલું બધું સોનું લઇ ગયો કે તેના સિક્કા બનાવી ઇરાનમાં સોનાના સિક્કા દાખલ કરી શકયો. હીંદની રેતીમાંનું સોનું ઝીણા ઝીણા દાણામાં મલતું હતું.

સોલોમનને જે સોનું મળ્યું તેને માટે જે શબ્દ વાપર્યો છે તે પુર્વનેજ લગતો છે. 'ભોર'ને માટેનો શબ્દ આપણા 'તાઉસ' ને મળતો તામીલ ભાષાનો શબ્દ છે.

હિંદના હાકેમો દારાયસને ખંડણી તરીકે જે સોનું આપતા તે ૪૬૮૦ ટેલન્ટ જેટલું હતું, એટલે સુધી કે તેની હકુમતના ૨૦ મથકેથી વરસ દહાડે જેટલી મહેસુલ આવતી તેનો ત્રીજો ભાગ આ હિંદ તરફથી સોનામાં મળતો.

સોલોમનનું ઓફીર તેજ સોપારા.

ઇ. સ. ૫ મી સદીમાં સોપારા પશ્ચિમ હિંદમાં એક મોટું દરિયાઇ બાઇ હતું એમ પુરવાર થાય છે તેવું જ તેની આગળની સદીઓ ઉપર પણ તે સોલોમનના વખતમાં હોવું જોઇએ એ અતી સંભવિત છે અને તેટલા માટે તેજ સોલોમનનું 'ઓફીર' હોવું જોઇએ.

સોપારા તથા સંજાણ થાણા નજદીક.

તેનો વેપાર મોતીનો.

ટલોમી મુજબ ઇસા નુસારીયા (નવસારી) અને ચૌલ વચ્ચે સોપારા હતું. ૧૦ મી સદીમાં માસુદી તેને સબારા લખે છે અને તે કલ્યાણ નજદીકના ફીનારાનું શહેર જણાય છે. કહે છે કે અહીં સોપારા અને સંજાણમાં લેસ–શુ (જોડા) મળતા અને તે મુખ્ય કરી અરબસ્તાન જતા.

તેનો બહોળો વેપાર.

અરબ તવારીખનવેશ અલબીરૂની ૧૧ મી સદીની શરૂઆતમાં 'સુબારા'ને સંજાણની ૪૮ માઇલ દક્ષીણે અને થાણાની ૪૦ માઇલ ઉત્તરે જણાવે છે તે આપણું સોપારા નહીં તો બીજું કયું હોવું જોઇએ? તેને દક્ષીણથી દોઢ માઇલ દુર ઇ. સ. ૧૬૫૩માં લખનાર ઇંદ્રજી જણાવે છે અને તે ઉમેરે છે કે તેની વસ્તી ઘણી અને વેપાર બોહોળો હતો એટલું જ નહીં પણ તે હિંદુસ્તાનનુ એક અગત્યનું બજાર હતું, અને વધુ એ કહે છે કે ત્યાંની નજદીકની ખાડીમાં મોતી મલતાં હતાં.

યુરોપીઅન મુસાફરો.

૧૩૨૨ માં અત્રે આવેલો મુસાફર જોરદાનસ થાણાથી ભરૂચ સુપેરા (Supera)ને રસ્તે ગયલો હતો એમ જણાવે છે. તે કહે છે કે ત્યાં ઘણા ખ્રીસ્તીઓ હતા અને સેન્ટ ટોમ્સનું દેવળ પણ હતું.

કોંકણ ૨૨ સદી ઉપર.

અશોકના સ્થંભનો જમાનો આજે ૨૨ સદી ઉપરનો છે તેમાં તો કશો શક નથી. તે જમાનામાં કોંકણ, કે જેમાં આ સોપારા આવ્યું હતું, તે કોંકણ કોણના તાબામાં હતું? ઇસ્વી સનની એક સદી પુર્વે ત્યાં અંધરભ્રીત્યાસ નામનો વંશ રાજ ચલાવતો હતો જેની રાજધાની કૃષ્ણા નદીના નજદીકના મુખ આગળ આવેલા ધાનીકોટ ખાતે હતી. એ રાજાઓ તેલુગુ હતા અને પશ્ચિમ દેશ સાથ મોટો વેપાર કરતા.

પારથયનો સોપારાના ધણી.

આજ જમાનામાં હિંદનો પારથયનો સાથનો વેપાર પણ વધ્યો હતો. પારથયનોના નાહાપાન નામના હાકમે કોંકણમાંથી મજકુર અંધ્રભ્રીત્યસ રાજાને હાંકી કાઢયો અને તેણે ઇરાનના ક્ષત્રપો (Satraps–હાકેમો) તરીકે સ્વતંત્ર હાકેમો બનાવી તેઓને અહીં ઠરીઠામ કીધા. હિંદુ બાઇઓને પરણી પોતાના પરદેશી નામો મેલ્યા દઇ આ દેશના વતની તરીકે આ પારથયનો રહ્યા. તેઓએજ સોપારામાં મુસાફરખાના અને ધર્મશાળાઓ બંધાવી અને તે સાથ બુદ્ધના ધર્મ માટે ઘણું કીધું. મજકુર પારથયન નેહાપાનના વંશજોએ કોંકણનાં ઉત્તર ભાગપર અમલ ચલાવ્યો અને ઇ. સ. ૧૨૪માં તેમને ખુદ્ધિસ્તોએ ત્યાંથી હાંકી કાઢયા. મજકુર અંધ્રભ્રીત્યાના અમલમાં ઉત્તર કોંકણની દોલત અને પ્રતિષ્ઠા વધી ગઇ અને તેજ જમાનામાં આ ફીનારા

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તરફ સર્વ બુદ્ધિસ્ત ગોફાઓ થયા. ઇ. સ. ૨૪૭માં સોપારા, કલ્યાણ અને ચૌલ કોંકણના બારાં તરીકે જાણીતા હતા, ત્યાંનો બોહોળો વેપાર હતો અને ત્યાંથી આ દેશના કોસ્તા તરફના વહાણો ઇજીપ્ત ભણી જતાં.

કોંકણના રાજાઓ.

ત્યાર પછી ગુપ્તા અને મૌરયનોએ કોંકણપર અમલ ચલાવ્યો અને તે બાદ ચાલુકય સરદારે ઉત્તર કોંકણ તથા પુરી ઉપર હુમલો કર્યો અને પુલાકેસી બીજાના હાથમાં તે આવ્યું. ત્યાર બાદ સીલહારાઓ ૪ સદી કોંકણના રાજા બન્યા અને તેમની પછી ઇ. સ. ૧૧૬૧માં સોલન્કીઓનો અમલ શરૂ થયો તો જો કે ઇ. સ. ૧૨૬૫ સુધી છેલ્લો થાણાનો સીલહારા રાજા દેવગીરીના રાજાને હાથે માર્યો ગયો. ત્યાર પછી ૧૪ મી સદીની શરૂઆતમાં દીલ્લીના તુર્કી રાજાઓના હાથમાં કોંકણ આવ્યું અને તેઓએ ૧૩૨૩ માં થાણામાં એક લશ્કરી ફોજ રાખી એટલે ત્યારે સોપારા પણ તુર્કીના હાથમાં ગયું. હવે ત્યાંનો વેપાર નંદબાર અને સોનગઢને રસ્તે ખંભાત તરફ ગયો. 'મીરાતે અહમદી' મુજબ ઇ. સ. ૧૫૦૮માં સોપારાનું બંદર ગુજરાતના રાજાઓને મહેસુલ પોહચાડતું જણાયું છે.

સોપારા બંદરની પડતી.

હવે તુર્કોએ જ્યારે ઇ. સ. ૧૪૫૩ માં કોનસ્ટેન્ટીનોપલ જીત્યુ ત્યારે હિન્દુસ્તાન સુદ્ધાં એશિયાનો વેપાર જે પશ્ચિમ સાથનો હતો તે રાતા સમુદ્ર મારફતે ચાલ્યો, આથી સોપારાના બંદરની પડતી આવી. ત્યાંનો વેપાર ખંભાત તરફ ધસડાઇ ગયો અને જ્યારે પોર્ટુગીઝો આ તરફ આવ્યા ત્યારે તો સોપારાની પડતી આવી ચુકેલી હતી. હવે વેપાર ચૌલ, દાભોલ અને મલબારના બંદરો તરફ ધસડાઇ ગયો. ઇ. સ. ૧૫૩૪માં જ્યારે છાસ્ટી અને વસાઇ પોર્ટુગીઝોના હાથમાં આવ્યાં ત્યારે તેઓએ વસાઇ, તારાપોર વિ. તરફ કીલ્લા બાંધ્યા પણ સોપારાને પડતું મુકયું. આ વખતથી આ અસલી પશ્ચિમ હિંદનું બારૂ તદનજ પડી ગયું અને જ્યાં એક વેળા વસ્તી લાખોની હતી અને જે આ કોસ્ટાનાં શહેરોની રાણી અને આ હિંદ દેશના ૧૪ મુખ્ય શહેરોમાંનું એક હતું તે માત્ર એક ગામડાંની પંકતી ઉપર વેપાર વણજ બીજા બંદરો તરફ ધસડાઇ જવાથી આવી પડયું અને તે આજ ચાર સદી થયા ઉઠવા પામ્યું જ નથી. આજે તો તે એક દુધવાળાઓનું નાનકડું ગામડું થઇ પડયું છે. ત્યાં રેલ્વે સ્ટેશનનો પ્લાટ ફોર્મ વટીક બાંધવાની અગત્ય જણાઇ ન હતી અને પ્લાટ ફોર્મ જમીનને લાગતો. ચડતી પડતી, માણસની તેમજ જમીનની પણ આવે છે. જ્યાં જમીન હતી ત્યાં પાણી, જ્યાં પાણી હતું ત્યાં જમીન. કોઇનો એક સરખો દહાડો રહેતો નથી. શાહ દારાયસની શાહનશાહત પછી પારસીઓએ અનેક બળવાન શાહનશાહતો હજારો વરસ ઘેર ભોગવી આખેરે ૧૨ સદી ઉપર હાદેસામાં પડી રાજપાટ બોહી બેઠા. અશોકનો જમાનો રહ્યો નહીં. અનેક રાજાઓ તે પછી રાજગાદીએ આવ્યા અને હવે આ દેશમાં બળવાન પરદેશી રાજ અમલ ભોગવે છે.

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THE ROCK-EDICT OF ASOKA AT SOPARA, 35 MILES FROM BOMBAY 2200 YEARS OLD.

(Printed from the original fragment in the Prince of Wales Museum of W. India by Mr. R. B. Paymaster with the kind permission of the Trustees of the Museum.)

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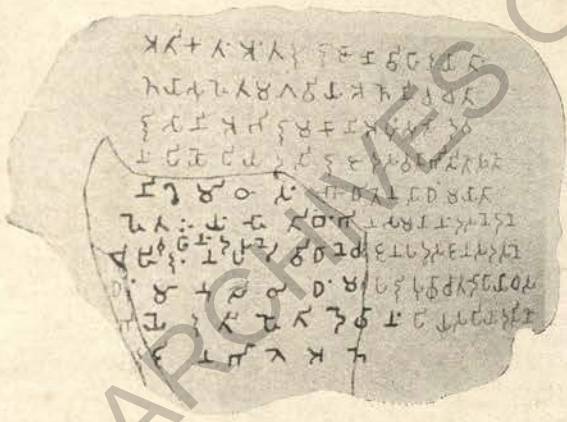

Inscription on The Rock-Edict of Asoka at Sopara.

(As given in the B. B. R. A. Society Journal by the late Pandit Bhagwanlal Indraji and published by Mr. R. B. Paymaster. For the meaning of the inscription see p. 3.)

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એક મહાન પારસી શહેનશાહને ગેરઇન્સાફ.

શહેનશાહ 'દારાયશ ધી ગ્રેટ'ને માટે બહાર પાડેલા તદ્દન ખોટા અપમાનભર્યા સુખનો.

હીંદની અસલી તવારીખ—હીંદનો શહેનશાહ અશોક.

અશોકના ખડક કે સ્થંભો ઉપર કોતરેલા લેખો.

તેને ચહડાવવા માટે દારાયશ જેવા તેનાથી સોગણા બળવાન રાજાને ઉતારી પાડવાની ભુલ ભરી કોશેશ.

અશોકના કોતરકામનો ખડક મુંબઇથી ૪૦ માઇલ દુર મળી આવવા વીષેની ખાતરી.

લખનાર :

મી૦ રૂ. બ. પેમાસ્તર, બી. એ., એલ. એલ. બી.

[જામે જમશેદ, તા૦ ૨ જી તથા ૨૭ મી જુલાઇ ૧૯૨૯.]

ઇ. સ. પુ. ૨૫૦ ને આશરે થઇ ગયલા હીંદુસ્તાનના મહાન શહેનશાહ અશોકનાં ખંડીયેરો આજે પણ આ દેશનાં કોઇ કોઇ ભાગેમાં મળી આવે છે. તેમાંનો એક મધરાસ ઇલાકામાં કુરનુલ મથકે હાલ જડ્યો છે; તે વીશેની ખબર ગયે અઠવાડીયે ત્યાંથી અત્રે તાર મારફતે મળેલી 'જામે'માં તથા બીજાં પત્રોમાં છપાઇ છે. આ શોધ એક બંગાળી વીદવાને કીધી છે તે માટે સંતોષ માનવો જોઇયે છે. હવે અશોકના આ લેખોમાંનો એક આપણા મુંબઈ શહેરથી લગભગ ત્રીસ ચાલીસ માઇલ દુર આવેલા નાના સોપારા આગળ પણ હતો એવી આ પ્રસંગે મેં ઇંગ્રેજી છાપા 'ટાઇમસ ઓફ ઇંડીયા' મારફતે યાદ દેવડાવી છે. આ લેખ (૨૨૦૦ વરસ જેટલો જુનો) નાના સોપારા જેવા આજના એક કમીના ગામડામાં હોય એ પહેલી નજરે માની શકાય નહી; પણ તે ખરેજ છે એમ હું આગળ ચાલતાં સાબેત કરવા ધારું છું. આ સોપારા તે જમાનામાં હીંદનાં આ પશ્ચિમ કોસટાનું એક રાજધાની શહેર હતું. અને તેથીજ આ દેશની ૧૪ જગાઓમાંથી એક એ 'સોપારા'ને આ યાદગાર સ્થંભને લાયકની તે જમાનામાં માનવામાં આવી હતી. દીલ્હી તથા માઇસોર બાદ આ સ્થંભો હતા તેમજ આપણી તરફ વસઇની ઉતરે આશરે ૪ માઇલને છેટે આવેલાં 'સોપારા'માં હતું. આ સ્થંભનો એક ભાગ હાલ મળી પણ આવ્યો છે જે વીશે હું હવે પછી લખીશ. હાલ મને આ લેખ લખવાને એ કારણ મળ્યું છે કે કુરનુલ મધે અશોકનો સ્થંભ મળી આવવાની વધાઇ બહાર પાડતાં તે સ્થંભની ભાષાની સરખામણી કરતાં આપણા મહાન

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ધરાની શહેનશાહ દારયયુશ હીસતાસપીસને ઉતારી પાડવામાં આવ્યો છે કે દારયયુસનાં લેખ મધ્યે તે શહેનશાહ પોતાની વડાઇઓ મારે છે અને ખોટી તકાખરી જાહેર કરે છે, જેવું અશોક કરતો નથી. આ વીચાર કેવો ભુલભરયો, ગેરધનશારી, ખરી તવારીખને ઉલટાવી નાખનારો છે તે હું અત્રે સાબેત કરવાની કોશેશ કરી એક જબરા પારસી શહેનશાહ જે ધરતીને ધુજાવવા સાથ ઉમદા સદગુણો ધરાવતો હતો તેને ઈનસાફ આપવાની કોશેશ કરીશ.

હખામની પાદશાહ સાયરસ.

મહાન હખામનીયન શહેનશાહતના સ્થાપક સાયરસ ધી ગ્રેટે દુનીયામાં એક મહાવીર બળવાન શહેનશાહ તરીકેજ નહી પણ એક બહુજ સદગુણી ઉમદા વીચારવંત અને ઈનસાફી રાજકરતા તરીકે જે નામના મેળવી છે તેવી આ દુનીયાના થોડાજ બખ. તાવર શહેનશાહોને ફાળે આવી હશે, એથીજ Historians' History of the World નાં લખનારે તેની અતીશય તારીફ કરી છે, જે માટે ખરેખર આપણા જરથોસ્તીઓએ મગરૂર થવાનું છે. એ મહાન શહેનશાહની જીતાયલી પ્રજાએ તરફની ભલી વર્તણુંક તો એક કહેતી થઇ પડી છે અને ખુદ ખ્રીસ્તીઓનાં પવીત્ર બાઈબલમાં તેની નોંધ જલવાઇ રહી છે. તેની પછી તેનો બેટો કેમ્બાઇસીસ ઈ. સ પુર્વે ૫૨૯ માં ગાદી પર બેઠો અને તે પહેલો પારસી ચઢવાઇ આફ્રીકા ઉપર ફતેહમંદી સાથ લઇ ગયો હતો. તેના મરણ બાદ કેટલીક અંધાધુંધી પછી તેના ખાનદાન સાથ પીત્રાઇપણાની સગાઇ ધરાવનાર દારયસ હીસતાસપીસને રૈયતે રાજગાદી ઇ. સ. પુર્વે ૫૨૧ માં આપી. આ વેળા જાગી ઉઠેલા બળવાઓને તેણે બળતવારીથી દાબી દીધા. તેણે ૧૯ લડાઇઓ લડીને સુલેહ પાંથરી પુર્વના મુલકો તરફ ચઢયો એટલુંજ નહીં, પણ યુરપ ઉપર પહેલા પારસી શહેનશાહ તરીકે સ્વારી લઇ ગયો. તે છેક ડેનયુબ નદી ઉપર ધસ્યો હતો અને ત્યાંની ગોથ પ્રજા ઉપર જીત મેળવી છેક રશીયામાં દાખલ થયો. દારાયસનું રાજબંધારણ સંપૂર્ણ લેખાતું અને તેના હાકેમોની ગેરવર્તણુંકની તપાસ માટે એક ખાસ શહેનશાહી અદાલત નેમી તેમની રૂબરૂ પરથી જુલમાટને દુર કીધો હતો. વળી તેણે ચઉદ ચઉદ માણસે નાં ટપા બનાવી એક ફાંકડું ટપાલ ખાતું સ્થાપ્યું હતું.

સવેઝની નહેરની દારાયસની શોધ.

પાદશાહ દારાયસે સ્વેઝની નહેર બંધાવી હતી એ કાંઇ જેવી તેવી સેવા દુનીયાને કીધેલી ન લેખાશે. રાતા સમુદ્રને નાઇલ નદી સાથ જોડી નાંખવા માટે એક ગંજાવર નહેર બંધિવાની યોજના ઘડી તેણે મહાન બજનેરી કળા બતાવી હતી.

દારાયસનો બહીસતુન પહાડ ઉપરનો મહાન લેખ.

પણ આપણને આજે જે ખાસ કામ છે તે પાદશાહ દારાયસના પહાડ બહીસ્તુન પર કોતરાવેલા મહાભારત લેખો સાથે છે. આ લેખો વીષે મરહુમ મધરાસવાળા સરકારી જુના ખંડીયરો ખાતાવાળો લખી દારાયસ વીષે એવા ટીકા કીધા છે કે તેણે તેમાં પોતાની મગરૂરીભરી બડાઇ કીધી છે. આ લેખ સર્વથી જુનો લેખ છે. ખુદ શહેનશાહ અશોકે આપણા મહાન બરાની પાદશાહની પાહાડી લેખની રીતો અખત્યાર કીધી છે. એ લેખની નેમ દારાયસે પોતાના વખતની તવારીખની મુખ્ય નોંધો જાળવી રાખી ભવીષ્યની દુન્યાને એક મોટો ઇતીહાસીક ફાયદો કીધે કે જે ઉપરથીજ તેનું જબરૂ ડહાપણ જણાઈ આવે છે. પોતાની શહેનશાહતના મોટા રસ્તાઓ આગળના બુલંદ પહાડોને તેણે આ તવારીખી કામને માટે પસંદ કરવામાં બરોબર ડહાપણ વાપર્યું છે અને તેથીજ તે જળવાન રહયું છે, જ્યારે તેની નકલ કરનાર અશોકના ત્યાર પછીના બડક કે રથભો ઉપરનાં કોતરકામો મોટે ભાગે આજ-વેર લગભગ નાબુદ થયાં છે આ અસલ બગલતાન (Big Place) અથવા બહીસ્તાનનાં પ્રખ્યાત પવીત્ર ૧૭૦૦ ફીટની ઉંચાઇના પહાડ ઉપરજ લેખ કોતરાવયા તે જમીનથી છેક ૪૦૦ ફીટની બુલંદીથી શરૂ થાય છે. એ પહાડની બડબચડી જમીનને દારાયસે હુનર મંદીથી સીધી સાફ કરાવી ચુનંદા કારીગરોને બહુ મુશ્કેલી

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અને જોખમમાં ઉતારી તેઓ પાસે ખીલા રોકી અક્ષરોની કાંઇ થોડી ઘણી નહી પણ એ હજાર લીટીઓ ત્રણ ત્રણ જુદી ભાષામાં કોતરાવી દુનિયાને ઉરતમાં નાખી છે.

એ લેખની સંભાળ.

વળી એ સર્વે કોતરકામ જળવાઇ રહે અને તેને કોઇ હાથ લગાડે નહી એવા હેતુથી તેના પર એક કાચના જેવું પડ કરી લેવામાં આવ્યું હતું. આ લેખો સાથે લંબાઇ, સફાઇ અને બારીક કારંગરીમાં પુરાતન દુનીયાના બીજા કોઇ લેખો હરીફાઇમાં ઉતરી શકતા નથી. અશોકના લેખો કાંઇ ઉંચા પહાડપર નથી. તેમાંના ઘણાક તો ખડકપર કોતર્યા છે. વળી તે લેખો કાંઇ એટલા લાંબા નથી. તે ઉપર તો મુખ્ય કરીને મનુષ્ય દયાને લગતા, બુધ ધરમને અનુસરતા ફરમાનો કોતરાવ્યાં છે અને આસપાસની તે વેળાની કેટલીક તવારીખી વીગતો આવવી જોઇયે તે આવવાથી અશોકના લેખો પણ આજે અસલી સ્વાએ હજાર વરસની હીંદની તવારીખ પર કાંઇક અજવાળું નાખે છે. અત્રે હું આજે ઘોભી આ દારાયસના યાદગાર લેખમાં શું શું સમાવ્યું છે તે જણાવી તેમાં તે હકરાઇ જેવો કાંઇ પણ અંશ આવતો નથી એમ પુરવાર કરીશ.

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એક પારસી શહેનશાહને કીધેલો ગેરઇન્સાફ.

કયાં શહેનશાહ દારાયસના પાહાડ ઉપરના લેખ અને કયાં અશોક રાજાના સ્થંભો.

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મહાન શહેનશાહ દારાયુસના નક્શે રૂસ્તમના કોતરકામની તપાસ.

લખનાર:

મી૦ રૂ. બ. પેમાસ્તર, બી. એ., એલ. એલ. બી.

·મારા આ વીષય ઉપરના આગલા લખાણમાં આપણા મહાન શહેનશાહ દારાયસને જે હાલ સરકારી ખંડેરોની જાળવણી માટેના ખાતાં તરફથી ગેર ઇનસાફ થયો છે તેનું ટુંક બયાન કર્યું છે. આજે હવે એ વીષયના ઉંડાણમાં ઉતરીશ.

દારાયસ સામેનું આળ

શહેનશાહ દારાયસના પહાડ ઉપરના બીલ્લા-રોકી લેખોની સાથ અશોકના કોતરકામની સરખામણી કરતાં પાદશાહ દારાયસને જે મોટો ગેરઇન્સાફ કરવામાં આવ્યો છે તેના શબ્દો હું હેઠળ આપીશ:

They do not the boastful achievements of a haughty king like the inscriptions record merely of Darius at Behistun.

અશોકના ઢંઢેરાવાળા ગીરનારના સ્થંભના જેવાજ તેના કોઇક બીજા સ્થંભો કહેવાય છે. આ ગીરનારના સ્થંભના જેવોજ શીલાલાનો પણ દીસે છે. જેમાં એટલું જ જાહેર કીધું છે કે "લાંબા વખત સુધી રાજાઓ મોજની મુસાફરીએ નીકળ્યા, જ્યાં તેઓ શીકાર અને એવી બીજી ગમતો કરતા. આ કારણને લીધે દશ વર્ષવેર રાજ ચલાવનારા રાજા જે દેવતાઓનો માનીતો છે અને જે ખરૂં જ્ઞાન ધરાવે છે તેણે એક ધાર્મીક સફર માથે લીધી હતી. આ મુસાફરીમાં નીચે મુજબ છે:—'બ્રાહ્મણો અને બુધીસ્ત સાધુઓની મુલાકાત લઇ તેમને ભેટો આપવી. બુઢાઓની મુલાકાત લઇ તેમને સોનાની ભેટ આપવી અને ધારા તથા રઇયતની સંભાળ લઇ તેમને ધર્મની બાબતમાં શીક્ષણ આપવું તથા ધર્મને લગતી બળરો મેળવવી." આ રીતે આ ધાર્મીક મુસાફરીઓ આ દેવતાઓના વહાલા રાજાના રાજ્યના બીજા ભાગોમાં બહુ મોજ પમાડનારા છે," હવે વાંચનાર જોશે કે આ અશોકના લેખમાં કેટલું થોડું આપણને જાણવાનું મળે છે અને તેટલા-માંથી રાજાની પોતાને માટેની બડાઇ, દેવતાઓનો તે માનીતો હોવાની બટાઇ, તેને ખરૂં જ્ઞાન મલવાની ગરજી કીધી છે. હવે એની સાથ સરખાવતાં આપણ દારાયસનો લેખ તો એક જડ પથરા આગળ હીરા જેવો ચળકાતવાળો જણાશે.

બહીશતુનના લેખમાં શું શું જાહેર કીધું છે?

મજકુર બહીશતુનના લેખ ઉપરાંત દાયરાએ બીજા ઘણાક લેખો પણ કોતરા-વ્યા હતા. આખા નવસો ફીટ ઉંચા પહાડ ઉપર કોતરાવેલો લેખ જાણે તેના વસીયતનામા જેવો છે, આ લેખની ભાશા ઉપરથીજ પેલા કુરતુલ ખાતેના અશોકના લેખ શોધી કહાડનાર દારાયસ ઉપર બોટું આળ મુકવાની હીંમત કરે છે. દારાયસના આ લેખમાં શું ખરેખર કાંઇ ટેઢે કરાઇ જેવું છે કે? બારીકાથી જોતાં તો તેમાં પાક અહુરમઝદની સેતાયશ આવે છે. જગેજગ ઉારમઝદની મદદનો બુલ્લાં દીલથી સ્વીકાર કરી એક મોટામાં મોટો શહેનશાહ પોતે સાફ દીલથી જાણે એકરાર કરે છે કે મેં

જે કાંઇ કીધું તે મારી એકલાની મહેનતથી નહીં, પણ અહુરમઝદનીજ મદદથી થયું છે અને તેને જ તે આભારી છે. શું આ ટેકિકરાઇના વચનો કહેવાય કે નમનતાઇ અને કમીનાપણાનો એકરાર લેખાય? દારાયસ આ લેખ માટે શરૂઆતમાંજ કહે છે કે "અહુરમઝદ (તે) મહાન સાહેબ છે જેણે આ દુન્યા પેદા કીધી, જેણે પેલું આસમાન પેદા કીધું, જેણે ઇનસાનને સરજ્યું, જેણે ઇનસાનને વાસ્તે નવાજેશ પેદા કીધી, જેણે હું દારયુસને શાહ બનાવ્યો, ઘણાએક શાહોનો એકલો શાહ, ઘણા એક ફરમાનદારોનો એકલો ફરમાનદાર."

શું ઉપલામાં એક પણ શબ્દ એવો છે કે તેમાં શાહ દારાયુસે કાંઇ પણ પ્રકારની કહો કે નરમમાં નરમ પણ અલીમાની બતાવી છે? જેણે એજ લેખોમાં પાછળથી વર્ણાવવા મુજબ ત્રીસ ત્રીસ મોટાં ગન્યો મેળવ્યાં તે શહેનશાહ પોતાની હિમત, પોતાની મહેનત કે જંજાળ માટેનું કશું પણ માન પોતાને આપતો નથી પણ તે પ્રથમથીજ જે અહુરમઝદની યાદ લંબાણુથી કરે છે તેને અને તેનેજ એકલાને આપે છે. હવે અશોકના લેખ ઉકળાવનારાઓ આવી કોઇ પણ ઇશ્વરની યાદ કરી તેને કોઇપણ રીતે પોતાની ફતેહમંદી માટેનું માન આ જાહેર લેખમાં આપે છે કે?

દારાયસ જે પોતાને માટે ઇશારો કરે છે તે અહુરમઝદના નામ તથા વખાણ કરવા પછીજ દે છે અને તે પણ નીચે મુજબ છેઃ—

"હું (છું) દાર્યવહુસ મહાન શાહ, શાહોનો શાહ, સરવ તરેહનાં લોકોનાં મુલકોનો શાહ છું. દુર વેરની આ બહોળી ભુમીનો શાહ, વીરતાસ્પનો પુત્ર, હખા મનીયન ખાનદાનનો પારસી, પારસી નસલનો, આરય, આરય તોખમનો." હવે આ પોતાને લગતા ઇસારામાં જે કાંઇ જોવામાં આવશે તે દારાયસની પોતાની ઓળખ છે જે દરેક લખાણમાં આવે છે. તે એટલુંજ કહે છે કે તે કાંઇ રૈયત નથી પણ શાહ છે. વળી તે જણાવે છે કે તેનો બાપ કોણ હતો, તેનું ખાનદાન કયું હતું અને તે કઇ તોખમનો હતો. અહીં પણ તે એક પારસી તરીકે મગરૂરી લે છે, જે તદન કુદરતી છે. વળી તે પોતાને એક આરયન કહી બીજા બહોળાં રાળાંમાં પોતાને ભેલી નંખાવી પોતાની કીરતીમાં બીજાઓને ભાગ આપે છે.

જ્યારે દારાયુસ પોતે કબજે કીધેલા ત્રીસ મુલકો ઉપર રાજ્ય ચલાવ્યું તેના નામ આપે છે ત્યારે પણ તે પોતે કહે છે કે "અહુરમઝદની મહેરથી એ નામ દીધેલા મુલકો ઉપર તેણે રાજ્ય ચલાવ્યું." આ મધે તેરમું નામ આપણા હીંદ દેશનું આવે છે એટલે તેવાં તો તેણે ત્રીસ ત્રીસ દેશ જીતયા ત્યારે અશોકે તો માત્ર એકજ દેશમાં રાજ ચલાવી પોતાના રથંભો ઓછામાં ઓછા ૧૪ મુખ્ય શહેરોમાં મેલ્યા. દારાયસ જેવા ૩૦ દેશોના જીતનારના એક કોતરકામમાં તેહેકરાટ કહેવાય કે અશોકના એકજ મુલકના ૧૪ ખડકના કોતરકામોમાં વડાઇ મનાય? જો વીરતારને ગણત્રીમાં લેવો તો અશોકની માફક દારાયસે ત્રીસ મહાન જીતેલા મુલકો ઉપર કમમાં કમ ત્રણસો લેખો કોતરાવી વડાઇ લીધી હતે.

હવે આગળ ચાલતાં પણ શાહ દારાયસ એકરાર કરે છે કે "અહુરમઝદે જ્યારે આ દુનીયાને (મુશ્કેલીમાં) જોઈ ત્યારે તે મને સોંપી અને મને શાહ બનાવ્યો. અહુરમઝદનીજ મહેરબાનીથી હું શાહ છું." હવે આથી વધુ કમીનાપણું શું બતાવી શકાય? આજે જ્યારે કેટલાક ખાનબહાદુર કે રાવબહાદુર થયા તો ટીચકે ત્રણ મોતી લટકાવી તકોબરા કરે છે ત્યારે આ ત્રીસ મુલકોનો શાહનો શાહ જે કાંઇ પામ્યો છે તે અહુરમઝદથીજ પામ્યો છે એમ સાફ દીલથી લખી જાય છે. વળી વાંચનાર જો કાંઇ શંકા લઇ જાય તો તેને માટે એવું કરે છે કે તેની ખાતરી માટે તે એક ચીતાર આપી તેનું તખત ઉંચકી જેઓ ઉભા છે તેમની તરફ ધ્યાન ખેંચે છે અને તે સાથે કહે છે કે (મારો નહીં) પણ "પારસી બહાદુરીનો ભાલો છેક દુર વેર પહોંચી ગયો હતો" અને ઉમેરે છે કે પારસી બહાદુરોએ પારસથી દુર વેર લડાઇઓ જીતી હતી.

સેવટની અહુરમઝદની વધુ યાદ.

વળી પાછો છેવટે પાદશાહ દારાયુસ એકરાર કરે છે કે "દારયવહુશ શાહ કહે છે કે જે કાંઇ મેં કીધું તે સર્વે અહુર

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મઝદની મહેરથી કીધું, અહુરમઝદે મને મદદ કીધી તેથી મારૂં કામ હું બજા લાવ્યો. અહુરમઝદ મારો, મારી કોમનો અને મારી શહેનશાહતનો બચાવનાર થાય! અહુરમઝદને મારી નમનતાપ ભરેલી જે અરજ છે તે અહુરમઝદ બક્ષે."

આથી વધુ કયો દસ્તુર પણ અહુરમઝદને યાદ કરતો હશે? આથી વધુ કેવી રીતે અહુરમઝદની મહેરની યાદ કરી શકાય? અહુરમઝદની મદદ વગર તે કહે છે કે મારૂં કામ બજા લાવી શકું તેમ નથી અને ત્યારબાદ તે વળી અહુરમઝદ પાસે બંદગી કરી દુવા માંગે છે કે તે સાહેબ તેનો (દારાયસનો) જ નહી પણ તેની કોમનો અને તેની શહેનશાહતનો અને તેની રૈયતનો બચાવનાર થાઓ. આ તેની અરજ નમનતાપભરેલી અને નહીં કે તકેબ્બરી સાથની તે જણાવે છે. આ સંબંધી દારાયસના લેખોના શબ્દો નીચે મુજબ છે:–

"ઓ ઇનસાન! જે કાંઇ અહુરમઝદના ફરમાનો છે તે તારી નજરે ખુલ્લાં થાવો! સચાઇનો રસ્તો તું ના છોડતો. આડો ના ચાલતો, પાપ ના કરતો."

વળી આગળ ચાલતાં શહેનશાહ દારાયુસ આ લેખ વાંચનાર ઇનસાનને શીખામણ દે છે કે "અહુરમઝદના ફરમાનો" શીખો, એટલું જ નહી પણ તે કહે છે કે સચાઇનો રસ્તો તું કદી છોડતો ના, આડો ચાલતો ના, પાપ કરતો ના."

જેમ અશો ઝોરથ્રુસ્ટર જરથોસ્ત અશોઇની ભલામણ જગેજગ કરે છે તેમ આ પારસી જરથોસ્તી શહેનશાહ કહે છે કે સચાઇના, તેજ અશોઇનો માર્ગ છે. તે વળી કોઇ પણ પ્રકારનું પાપ નહી કરવાને મજબુત શીખામણ આપે છે. આ પાપ શબ્દમાં કયો ગુનાહ નથી સમાયો, અને સચાઇ (અશોઇ)માં કયા ભલા સવાબના કામ નથી આવી જતાં? જ્યારે અશોકના જણાયલા કોતરકામોપર તો ફકત જીવદયાનું બુધીસ્ટ ફરમાન મુખ્ય ભાગે પ્રગટી નીકળે છે ત્યારે આ તેના કરતાં ત્રીસ ઘણા બળવાન શહેનશાહ તો દરેક જાતના ભલાં સવાબો કામો, જેથી મનુષ્ય નહી બલકે પ્રાણી માત્રનું સુખ સાચવી શકાય, તે માટે શીખામણ દે છે. કોણનો લેખ વધુ બહેળા અર્થનો કહેવાશે? શું દારાયુસના લેખમાં જરા પણ ટેઢંકરાઇ, તકેબ્બરી કે આપખડાઇ છે? નથીજ.

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રાજા હર્ષ અને પારસીઓ.

ઈ૦ સ૦ ૭ મી સદીના એ હીંદુ રાજાનું જરથોસ્તી દીનના મુળ પાયાને મળતું ફરમાન.

મહાન હીંદુ રાજા હર્ષે મનશાની, ગવશાની, કુનશાની, જેવા કલામોની કીધેલી ભલામણ.

"ફરમ," 'મનસ', અને 'વાચા'થી બહેસ્ત મળે છે એવું તેનું ફરમાન.

જરથોસ્તી પવીત્ર કલામોને મળતું શીક્ષણ.

જમે જમશેદ માટે

લખનાર—મી૦ રૂસ્તમ બ૦ પેમાસ્તર, બી. એ., એલ. એલ. બી.

આપણા પાક જરથોસ્તી મઝહબના નીતિને લગતાં ત્રણ મુળ ફરમાન હુમત, હુખત અને હુવરસ્ત યાને મનસની, ગવસની, કુનસની જગજાહેર થઇ માન પામેલાં છે. નીતીના એ મુળ કાનુનો મુજબ જો એક જરથોસ્તી ચાહે તો તે ઉંચામાં ઉંચી નીતીનું ધોરણ અખતયાર કરી મીનોઇ જીંદગીમા હંમેશગીનું ઉતમ સુખ (બહેસ્ત) પામી શકે. અશો પયગામબર જરથોસ્તે હજારો વરસ ઉપર એવું શરેસ્ટ શીક્ષણ આ દુનીઆને આપી નીતી તરફ અચુક રીતે મનુષય જાતને દોરવી છે. જમાના ઓ બદલાયા, વીચારોમાં જબરા ફેર ફારો થતા રહયા, પણ નેક વીચાર, નેક વચન અને નેક કારયનું શીક્ષણ કોઇ બદલી શકયું નથી કે નથી તેમાં કશો ફેરફાર કે સુધારો થઇ શકયો. કેટલાક ધરમની ફીલસુફી નેક કારયોમાંજ, તો કોઇકની નેક વાચામાં પણ સમાય લી માનવામાં આવે છે, જયારે મહાન જરથોસ્ત પયગામબરનું શીક્ષણ પ્રથમ દરજજો નેક વિચાર, (મનસની)ને આપે છે. કારણ કે વાચા, વિચાર વગર કેવળ મીથયા છે ગમે તેવું નેક કારય કે ગવે તેવી નેક વાચા હોય પણ જો આપણ કહીએ છીએ તેમ મનસનીજ સારી ન હોય તો તે નીતીવાન ગણાયજ નહી. હેરેમન પણ શોભીતાં કારયો કરી લલ ચાવી શકે. વળી મીઠા મીઠા બોલા બોલી તે આડે મારગે દોરવી શકે, કારણ કે તેની મનસનીજ બુરી. જેની મનસની સારી, જેની નઇયત રૂડી તેનુંજ વાચા કે કારય નીતીવાન કે સદગુણી લેખાઇ શકાય. આપણા મહાન પયગમબર 'હુમત' (મનસની) ને ચઢતી પંકતી આપી નીતીનું

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ધોરણ ઉંચે તબક્કે લઈ ગયા છે. એ ધોરણ કદી ખોટું પડયું નથી કે પડનાર નથી. બોધને ત્યાં ઇનસાફ મનસની માફકજ થાય છે. નેક મનસની હોય તોજ નેક ગવરનીને શોભા મલે અને એ બંને જેમાં જોડાયલી હોય તેનજ કુનસ ી (યાને કારય) ખરી રીતે સફળ નીવડે.

દરેક ધરમમાંથી મળતું કાંઇક સારૂં શીક્ષણ.

ઉપર કહયું તેમ હુમત, હુમત અને હુધરસ્તના કલામો અચળ છે. તે સરવદા નીતીનું ઉતમ માપ પુરૂં પાડે છે. તે દેશ, કાળ કે સ્થીતીના ઉપર આધાર રા મતા નથી; જયાંથી હોય તયાં, જેથી કોમ કે જાત હોય તેને કોઇ પણ જમાનામાં એકસરખા ઉપયોગી છે. નીતીનું એવું ફરમાન ધારમીક રૂપ પકડવાથી સચવાઈ રહેલું છે. નીતી વગરનો ધરમ ઝાઝોવાર ટકી શકતો નથી. ધરમ એ મનુષય જાતને આ દુનયાઇ મુસાફરીમાં સલામત જગા તરફ દોરવી જવાને રાહબરી કરે છે. તે નીયમ પ્રમાણે જરથોસ્ત સાહેબે આ શીક્ષણ આપી તમામ મનુષય જાતને સદા ઉંચા તબક્કા ઉપર લાવવાનો એક મહાન પેગામ પુગાડયો છે. એ પયગામબરનું કામજ અહુરમજદ તરફથી પેગામ લાવવાનું છે. જેટલો એ પેગામ સાચો અને અમુક હોય તેટલો તે ધરમ પણ ઉંચો હોવો જોઇએ. તેવાજ પેગામની ભલામણ કરનારાઓ માત્ર જરથોસ્તી ધરમ પાળનારાઓજ નહીં, પણ બીજા ધરમવાળાઓ પણ હોઈ શકે. જે સારૂં તેને ગ્રહણ કરવા માટે કાંઇ ધરમની બાધ નડતી નથી. એક ધરમ 'પયગંબર'નું શીક્ષણ આપે છે તયારે બીજો અશોહનું આપે છે. એજ મુજબ દરેક ધરમમાં મનુષય જાતને સમારગે દોરવવાને કંઇને કંઇ શીક્ષણ અહુરમજદ તરફથી દેશ, કાળ અને સ્થીતી મુજબ મોકલવામાં આવે છે.

એક હીંદુ રાજાનું જરથોસ્તી શીક્ષણ.

ઉપલા ત્રણ સોનાનાં મુલના શબ્દોના જ જેવા, બલકે તેજ શબ્દોમાં, હીંદુસ્તાનના એક આગલા વીદવાન રાજાએ પોતાની રૈયતના એક ભાગને શીખ દીધેલી નોંધાઈ છે તે તરફ આપણી પારસી તેમજ હીંદુ કોમોનું ધયાન ખેંચવાની અત્રે જરૂર જોઉં છું. આજ કાલ કોમ કોમ વચે કેટલોક અંટસ આ દેશમાં વધી ગયો છે તેમાં ધારમીક કમનસીબ મતભેદ મધેના કારણોએ આ અંટસમાં વધારો કીધો છે અને આજે આ ભારત ભૂમી મધે મુખય સવાલ એજ થઇ પડયો છે. એજ સવાલ ભલા ભલા રાજદવારીઓથી હર પાડી શકાતો નથી. રાજદવારી બાબતોમાં ધારમીક ભેદ લાવી છુટા પડવું એ આપણા દેશની હાલની મોટામાં મોટી કમનસીબી છે. એવા પ્રસંગે ધારમીક એકસરખાપણાનાં જેટલા દાખલા દશ સનમુખ ધરવામાં આવે તેટલા ફાયદોજ કરશે. ગયે સાલ આજ માસમાં આ અદના કલમે બારડોલી મધેના સતયાગ્રહનું–અરવાચીન કાળના હીંદુઓની સાથે બરીઆવના પારસી વીરલાઓના સદીઓ આગમજના એ બાજ સતયાગ્રહની યાદ દેવડાવી હતી. હાલ એવોજ એક ધારમીક દાખલો હીંદ દેશની એક હજારથી વધુ મુદતની તવારીખમાં મળે છે તે વાંચનાર સનમુખ મેલવાની મારી ફરજ સમજું છું.

ઇરાનથી સંજાણ આવેલા પારસીઓનો જય.

હીંદ મધે હર્ષવરધન નામના એક પ્રાકમી રાજાએ ઇ૦ સ૦ ૬૦૬ થી રાજ કરવું હતું. ઇ૦ સ૦ ૭૧૬ માં આપણા જરથોસ્તીઓ ઇરાનથી (દીવમા ૧૯ વરસ વસવાટ કરી) સંજાણ આવી પુગયા તેની એક સદી પુરવ આ રાજા

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ઉતર હીંદમાં રાજ કરી ગયા હતા. ચીનાઇ મુસાફર Hwuan Chwang (હ્યુઆન ચ્વાંગ) તેની દરબારમાં છેલ્લા ૮ વરસ હતો તેણે એ રાજયનો ખ્યાલ લખ્યો છે. વળી રાજા હર્ષ એક મોટો કવી હતો. તેના સંસકરતમાં રચેલા નાટકોમાંનો 'રતનાવલી' અત્રેની યુનીવરસીટીના અભ્યાસકમમાં મેલવામાં આવે છે, તેવોજ પ્રમાણે તેનો નાટક 'પ્રીય દરશક' છે જે માંથી અત્રે ચાર ધારમીક લીટીઓ સર ખામણી માટે મારાં આ લખાણના પાયા તરીકે ક્ષેત્રા ધારૂં છું.

હરષના વડીલ.

રાજા હર્ષના બાપનું નામ પ્રભાકર વરધાન હતું. તેણે આશરે ઈ૦ સ૦ ૫૮૪–૬૦૫ સુધી રાજ ચલાવ્યું હતું. તેનો વડો દીકરો રાજય વરધન હરષથી ચાર વરસ મોટો હતો જેને બાકીના હુનોને મારી હઠાવવાને ઇ૦ સ૦ ૬૦૫ માં ઉતર પશ્ચીમની સરહદપર મોકલ્યો હતો જયાં તે એક વરસ રાજ ચલાવી તાવથી વીસ વરસની ઉમરે મરણ પામ્યો હતો આ હુનોનું આગલું જોર કેવું હતું તે શમસુલ ઓલમા ડા૦ જીવનજી મોદીએ આપણને અતયાર અગાઉનું સમજાવ્યું છે. ગયા ડીસેમબર માસમાં એક હંગેરીયન મુસાફર આ દેશ તરફ આવ્યો હતો. તેણે અત્રે કામા ઓરીયંટલ ઇનસ્ટીટયુટમાં તથા નવસારી મધેની વાડીમાં કીધેલાં કીંમતી ભાશણો આપણે ભુલ્યા નથી. આ તેજ હુનો છે કે જેમની સાથ રાજા હર્ષના વડા ભાઇ રાજય વરધનને લડાઇમાં કામ લેવું પડયું હતું.

રાજા હરષનો પ્રીયદરશીકા નાટક.

કેલંબીયા યુનીવરસીટીએ Indo-Iranian Series કહાડી છે તેનું દશમું કેતર રાજા હર્ષના સંસકરત નાટક પ્રીયદરશીકા નામનું કેટલુંક થયું બાહેર પડયું છે. આ સુંદર બાઇનડીંગનું મોટું પુસ્તક ઇ સ. ૧૯૨૪ માં જયારે તે પહેલાં બાહેર પડયું તયારે મે તેની તપાસ 'જામે જમશેદ' મધે અંગ્રેજ લખાણોમાં લીધી હતી.

આ આવરતિ કેલંબીયા યુનીવરસીટીના જાણીતા વીદવાન પ્રો૦ એ. વી વીલયમ જેકસને બાહેર પાડી છે. તેમાં તેણે ઉતર હીંદુસ્તાનમાં ઇ. સ. ૭ મી સદીમાં થઇ ગયલા રાજા હર્ષનો નાટક પ્રગટ કીધો છે. એ સંસકરત નાટક ઇંગ્રેજીમાં આપણા ઓરીયંટલ સ્કોલર મી૦ જી. કે. નરીમાને લખ્યો છે જેમનું નામ માન સાથ પહેલાં આપી તેને અગ્રપદ આપ્યું છે. પ્રો૦ જેકસને વળી એક ત્રીજા વીદવાન ડા૦ ચારલસ ઓગડનને સામેલ કીધા છે. આ બેલા શીકાગો અમેરીકન ઓરીયંટલ સોસાયટીના કોરસપોનડીંગ સેકેટરી છે. છેલ્લા બે વીદવાનોએ એક કીમતી પ્રવેશ પત્રિકા (introduction) લખ્યો છે અને તે સાથ નોટસ પણ તેમના હાથની છે. આ હીંદના રાજાની કલમથી સંસકરત અને પ્રાકરત ભાશાઓમાં લખાયલા એક નાટકને ઈંડો–ઈરાનીયન આવરતીમાં જગયા કાંય આપી હતી તે જોઇ કાંઇક અજાયબી ઉપજતી હતી.

હાલના ફકરાની તવારીખ.

ઉપલો ફકરો મધુબન પલેટ, જેની નીચે જમીનની બક્ષીશ રાજાએ કરી હતી, તેની ચાર લીટીઓમાં હર્ષના ભાઇ રાજય વરધાનના મોતને લગતો ઇશારો આવે છે કે તે તેના દુશમનો કપટથી લાવ્યા હતા. આ ફકરો રાજા હર્ષે પોતે જોડયો હતો. કવિતાની ચાર લીટીનો બીજો ફકરો જે તેણે લખ્યો છે તે મધે તે નશીબ માટે ઇશારો કરી તેને વીજળી કે પાણીના પરપોટા માફક અરથીર જણાવી પોતાના કુટુંબીઓ પાસ ઉપલા બક્ષીસની બહાલી માંગે છે. તયાર પછી જે કવીતાનો શલોક આવે છે તેની સાથ આપણને હાલ ખાસ કામ છે.

NATIONAL ARCHIVES OF INDIA

"કરમના, મનસા, વાચા."

હર્ષના ઉપલા લેખમાં નીચલી બેત શ્લોકના આકારમાં આવે છે.

સંસ્કૃત હરફમાં:–

કરમણા મનસા વાચા
કરતવયમ પ્રાણીન હીતમ!
હરષેણુષતત સમાખ્યાતમ
ધરમમારજનં અનુતમમ!

આ લીટીઓનો મી૦ જી. કે. નરીમાન તથા પ્રો૦ જેકસન નીચે મુજબ તરજુમો કરે છે:—

"By deed, thought and word one should do good to the living.

"This Harsha has declared to be the highest way of carrying religious merit."

ઉપલી બેત રાજા હર્ષે પોતે જોડી છે. તે એક મોટો કવ હતો અને તેણે નાટકો પણ લખ્યાં છે. આ બેતો મજકુર કેતાબના પ્રવેશ પત્રકમાં આવી છે એટલે તેમાં મોટો હાથ પ્રો૦ જેકસનનો માની શકાય. હવે પ્રો૦ જેકસન જેવાનો ઉપલો તરજુમો આપણી જરથોસ્તી ધરમનીતીનો અરથ જે ત્રણ સોનેરી શબ્દો મનસની, ગવસની, કુનસનીમાં સમાયલો છે તેજ જાણે રજુ કરે છે. એ લીટીઓમાં રાજા હર્ષ (કુનસની) કાર્ય ને પહેલી જગા, તયાર પછી વિચાર (મનસની) અને સેવટે શબ્દ (ગવસની) (વાચા) ને આપે છે તે અનુકમ બરાબર લેખી શકાય નહી. આપણો અવસ્તાઇ અનુકમજ ફરો છે તેમાં કશો શક નથી. તેજ, ફીલસુફીની નજરે, બરાબર છે. પહેલાં મનસ (વીચાર), પછી ગવસ (વાચા), અને છેવટે કુનસ (કાર્ય) આવે છે.

સંસ્કૃત લખનાર આ મહાન રાજા ઉપલી સોનેરી ત્રગડીને માટે જે સંસ્કૃત શબ્દો વાપરે છે તે 'કરમ' 'મનસ' અને 'વાચા' છે જે ત્રણે આપણ પારસીઓ જેઓ ફકત ગુજરાતીજ ભાષા જાણે છે તેઓ સમજી શકશે. કરમને મલતો આપણો 'કુનસ' શબ્દ છે. સંસ્કૃત 'મનસ' છે તેને બોલે બોલ મલતો આપણો અવસ્તાઇ 'મનસની' શબ્દ છે અને 'કરતવયમાં એટલે (કરતય) યા કામ પણ 'કુનસ' (ફારસી કુન) ને મલતોજ લેખાશે. સંસ્કૃત ભાષા આપણી અવસ્તા ભાષાને અતીશય મળતી છે એમ તે બંને ભાષા જાણનાર વીદ્વાનો કબુલ કરે છે.

આપણી કુસ્તીની દર વેળાની ક્રિયામાં મનસની, ગવસની, કુનસનીને આપણ ભણી યાદ કરીએ છીએ, બદકે તેજ આપણી જરથોસ્તી ધરમનીતીનો મુળ કાનુન યાને પાયો છે, તેનો ઉપલો રાજશ્રી બેતમાં "પ્રાણી ન હીતમ" એટલે પ્રાણી ધરાવનાર (એટલે જીવતા માનુ) "હીત" જાળવે એવો અરથ કરે છે. 'પ્રાણ અને હીત' જે બંને સંસ્કૃત શબ્દો છે તેના અરથથી પારસી વાંચનાર બીનવાકેફ નથી. હવે ઉપલાંની પછીની (બીજી) લીટીનો જેમ અરથ અંગ્રેજીમાં પ્રો૦ જેકસન તથા તેમના ગોઠયાએ કીધો છે તેમજ મેં આપયો છે. રાજા હર્ષે સંસ્કૃત શબ્દોમાં એમ જાહેર કીધું છે કે એજ મારગ ધરમારજનમ (ઉંચા સવાબના) સરવથી વહીસ્ત (best) અને (શરેષ્ઠાયચા) છે. આપણ જેને સવાબ કહીએ છીએ તેને મલતો એકે બોલ અંગ્રેજીમાં નથી તેથી પ્રો૦ જેકસન શરેષ્ઠા મુજબ તેને religious merit કહે છે, જે મેળવવો (earning) રાજા હર્ષ બાપોકાર જાહેર કરે છે કે સરવથી ઉતમ (અનુતમામ) મારગ છે. વાંચનારની ઉપલાં ઉપરથી ખાતરી થશે કે આપણા જરથોસ્તી ધરમના પાયા તરીકે સમાયલા ત્રણ સોનેરી શબ્દો કેવા બંધબેસતા છે અને તેની નકલ (અનુકરણ) કરવાને આજ બાર સદી ઉપર જયારે આપણ ઇરાનથી આવી દીવ બલકે સંજાણ બંદરે પણ હેર પડયા ન હતા તેની પણ એક સદી અગાઉ થઇ હતી. તે વેળા હીંદ મધે આપણા પવીત્ર અ

રતાઇ કલાઓ જાહેર થયા ન હતા. જો આપણુ ખાતરીથી કહીએ કે જે જમાના માં આપણુ ધરાનથી હીંદુસ્તાન આવ્યા તેના એક સદી આગળનો જમાનો રાજા હર્ષનો હતો તોપણુ એટલું તો ખુલ્લું છે કે એ રાજા તો ઉતર હીંદુસ્તાન ઉપર મુખ્ય હકુમત ચલાવતો હતો, જ્યારે આપણુ જરથોસ્તીઓ તો હીંદુસ્તાનના પશ્ચીમ કોસ્ટાપર આવી પડયા હતા.

જાણીતા ઇતીહાસીક શોધક મી૦ આર. સુકરજી આ લીટીઓનો તરજુમો નીચે મુજબ કરે છે:—

"In the Madhuban Plate is the beautiful verse,

"By body, mind and speech should good be done to all creatures. This has been declared by Harsh as the best acquisition of 1 harma or religious merit (Rulers of India Series Harsha p. 159)"

આ તરજુમો મી૦ જી. કે. નરીમાન ના મજકુર તરજુમા જેવો અરથસુચક નથી.

હીંદનો તે જમાનો કંઇ જંગલી ન હતો.

આજ બાર સદી અગાઉ અત્રેના હીંદુઓના, કહો કે તેમના રાજ કરતાના, વિચારો કેવા વીકાસ પા મેલા હતા તે આ લીટીઓપરથી જણાઇ આવે છે. તેઓ નરતયકળા તથા કાવય રચનામાં આગળ વધેલા હતા તે પણ આ એક 'મહારાજા ધીરા જ'ના નાટકો પરથી સીધ થાય છે. તેના જ જમાનામાં ઉપલો મહાન ચીનાઇ મુસાફર એની દરબારમાં આવ્યો હતો જે એક સાધુ સંત જેવો હતો અને રાજાની દરબારમાં બહુ માન પામેલો હતો. તે પોતાની મુસાફરીનો તથા આ રાજાની દરબારને લગતો જાતી અનુભવ લખી ગયો છે, જે તે જમાનાના બનાવો તથા રહેણીકરણી ઉપર કીમતી અજવાળું નાંખે છે. રાજા હર્ષે કનોજ અને પ્રયાગ મધે મોટી ધારમીક મજલીસો ભરી હતી.

મોગલ વંશના સ્થાપનાર બાબર માફક તે એક લડવઇયો અને કવિ એ બંને હતો.

આ રાજા હર્ષના ધરમના છુટાપણા બાબે તેની બહુ તારીફ થાય છે. એ તો તેના કુટુંબનોજ ગુણ કહેવાય છે. તે શીવ, સુરય અને તે સાથ બુધની એકસરખી બંદગી કરતો હતો. આપણા પારસીઓ માટે તો તે જમાનો તદન લાચારી બલકે અંધકારનો હતો. તેઓ પારકા ધરમના ઝનુનનો ભોગ થઇ પડવા કરતાં દુઃખના મારયા પોતાનું વહાલું વતન ધરાન–તેના વાડી, વજીફા તથા ખુદ પોતાના સગાંઓને છોડી પો તાની એકલીજ જે દોલત તેઓ માનતા હતા (જે તેમનો અસલ પવીત્ર મજહબ હતો) તેની જાળવણીને માટે અકડાતાં ઝીકાતાં દરયાઓ દોહવતા આ હીંદ સરજમીનનાં તે વેળાના બહુ છુટા ધાર મીક વિચાર ધરાવનાર જાદેરાણાની દર બારમાં આવી પુગયા હતા. આ તેજ જમાનો હતો, કે જેને રાજા હર્ષના ડહાપણના ભંડારનો લહાવો મેળવયો હતો. જબરૂં ધારમીક છુટાપણું તે વેળા ના હીંદુ રાજયધીકારીઓમાં હતું તે આપણા આ કવીરાજના લેખોમાંજ નહીં પણ એજ રાજાએ જે અનેક ધારમીક કોનફરંસો ભરી છુટથી જુદા જુદા ધરમો ના મુળ કાનુનો ઉપર વાદવીવાદ ચલા વયો હતો તે ઉપરથી જણાય છે. જેમ મહોમેદન પાદશાહ અકબરે ૧૬ સ૦ ૧૬ મી સદીની આખેરીએ કીધું હતું તેમ આ હીંદુ રાજા હર્ષ વરધાને ૭ મી સ દીની શરૂઆતમાં કરી બતાવયું હતું. તે જમાનામાં યુરોપ તો બહુજ પછાત હતું અને ઇંગલંડમાં તો જંગલી ચાંચ યાનો દોર ચાલતો હતો અને ત્યાંના લોકો સુધારા વધારામાં અતીશય પછાત હતા.

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રાજા હર્ષે લીધલી વડાઈ.

મહારાજા ધીરાજ શ્રી હરખરાય એવું નામ રાજા હર્ષ પોતાની એક જમીનની બક્ષેશના પ્લેટ ઉપર લખે છે જે ઉપરથી જણાય છે કે આ હીંદુ રાજા પણ પોતાના કાર્ય માટે કાંઇક વડાઇ લેતો. એવી વડાઇ ખુદ આપણુ જરથોસ્તીઓના મહાન વીરલા હુખામની શહેનશાહ દારાયસ વીસ્તાસપીસે પણ પોતાના નક્ષે ફસ્તમવાળા પહાડ ઉપરના લેખમાં કાંધી ન હતી, પણ તેણે પોતાની દરેક મહાન ફતેહને અહુરામજદાની મદદથીજ કાધેલી ખુલ્લાં દીલથી અનેકવાર જાહેર કરી છે, જે આજે પણ વાંચી શકાય છે. આ બાબે મેં અતયાર અગાઉ આ કટારોમાં લખ્યું છે માટે અત્રે હું તે લંબાવીશ નહી. હાલ તો કોમી મતભેદ અને કડવાસના અફસોસકારક જમાનામાં કોમી અધકચરાના વધારા માટે જેથી કાંઇ ધારમીક શીક્ષણનું મલતાપણું મલી આવે તે ઘણું અગતયનું બોધકારક લખાવું જોઇએ. જરથોસ્તી ફરમાનોનું અનુકરણ થાય તે જોઇ જરથોસ્તી કોમે મગરૂર થવાનું છે. તેમના ખુલંદ ધરમના શીક્ષણો એવાં સર્વમાનય માલમ પડયાં છે અને તે એટલાં સાચાં નીવડયાં છે કે હાલની સાયનસ તેમને કોઇ પણ રીતે હલાવી શકતી નથી, બલકે સાયનસ અને વીદયાના વધારાથી એ ધારમીક શીક્ષણો સુખશાંતીને લગતાં કહો, કે નીતીજનક કહો, તે સર્વ અતી પ્રમાણ માલમ પડયાં છે એ થોડા સંતોષની વાત નથી.

જમે જમશેદ પ્રીંટીંગ વરકસ.

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PREFACE TO SECOND EDITION

LITTLE has to be added to the first edition compiled by the late Mr. G. Sanderson in 1914. A few details of subsequent expenditure on the conservation of the fort palaces have been given in the summary of archæological work carried out appearing at the end of the book; but the bulk of this work was done between the years 1903-12. A few typographical errors have been corrected, and the transliteration of Persian names into English characters has been made to conform with the system now generally adopted on the recommendations of the International Oriental Congress of 1894.

J. A. PAGE, A.R.I.B.A.,
Superintendent,
Muhammadan and British Monuments,
Northern Circle, Agra.

May 1918.

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INTRODUCTION

THE following notes are an attempt to combine all that is of chief interest in the numerous works, a list of which will be found overleaf, that refer to the Palace of Shāhjahān at Delhi, in the hope that they may lend an added interest to a visit to the Fort. The information from Indian historians has been collected by the late Maulvi Shuaib, formerly a member of my staff. It has been somewhat difficult to keep the notes within the scope of what is generally known as a "guide" and the writer hopes that the text will not be found to be overloaded with quotations. Some of these are, however, of considerable interest and local colour, and throw much additional light on the history of the buildings and their former functions. The plan is taken from the reproduction of the old plan of the Fort illustrated in Fergusson's *History of Eastern and Indian Architecture*. It contains several rather prominent inaccuracies but gives, on the whole, a fairly good idea of the former arrangement of the interior of the Palace. The measurements on the plan have been added by the writer for purpose of reference. It is suggested that the "birds-eye" sketch, which is an attempt at the conjectural restoration of the Palace buildings as they stood in the days of the "Great Mogul," be studied with the plan. The translations of the inscriptions on the Khuwābgāh and Muthamman Burj have been given by Maulvi Zafar Hasan, Assistant Superintendent, Northern Circle.

GORDON SANDERSON,

Superintendent,
Muhammadan and British Monuments,
Northern Circle.

April 1914.

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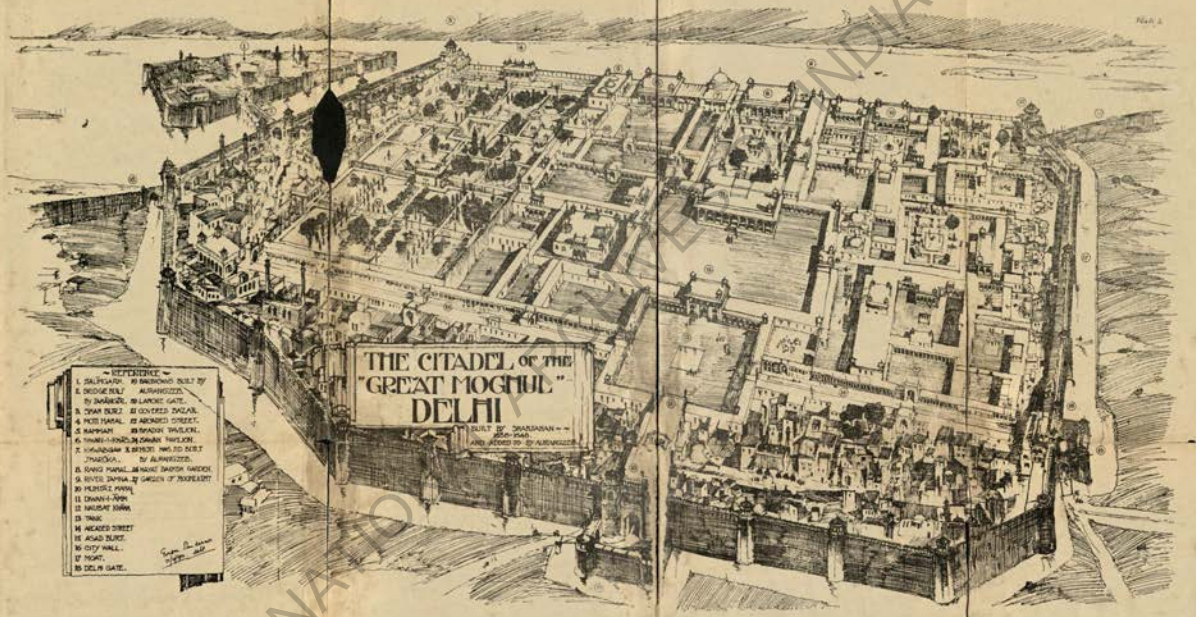
THE CITADEL OF THE
"GREAT MOGHUL"
DELHI
BUILT BY SHAHJAHAN A.D. 1638-1648
AND ADDED TO BY AURANGZEB
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1. SALIMGARH
2. BRIDGE BUILT BY AURANGZEB.
3. DIWAN KHAS
4. MOTI MASJID
5. HAMMAM
6. KHAS-I-MAHAL
7. SHAHJAHANI BUILT BY AURANGZEB.
8. KHAS MAHAL
9. MUMTAZ MAHAL
10. DIWAN-I-AAM
11. NAUBAT KHANA
12. TANK
13. ARCADED STREET
14. ASAD BURJ
15. CITY WALL
16. MOAT
17. DELHI GATE
18. BADSHAHI BURJ
19. LAHORE GATE
20. COVERED BAZAR
21. ARCADED STREET
22. SAWAN PAVILION
23. BHADON PAVILION
24. MOAT BARDEN GARDEN
25. GARDEN OF INDEPENDENCE

NATIONAL ARCHIVES OF INDIA

DELHI FORT.

A Guide to the Historical Buildings and Gardens.

The Fort generally.

AFTER a reign of eleven years at Agra, Shāhjahān resolved to remove his capital to Delhi. It is said that his reasons for transferring the capital to Delhi from Agra were the "broken ravines and numerous inequalities throughout the latter city, want of space in the Fort, narrowness of the streets, and the inconvenience caused to the inhabitants by the large crowds of troops and elephants, and the retinues of the Emperor and his Umarās." After paying several visits to Delhi, a site was chosen with the help of astrologers and *hakīms* on the main land, just south of Salīmgaṛh, which had been founded in 1546 by Salīm Shāh, as a defence against the approach of Humāyūn. According to the contemporary historians, the foundation of the citadel was laid on the 12th Dhilhijjah 1048 A. H. (1638 A. D.) and this date is corroborated by the inscriptions on the Khuwābgāh. Sayyid Aḥmād Khān, the author of *Āthāru-ṣ-ṣanādīd*, states that among some old papers a horoscope of the Fort fell into his hands, and that in it the date of the foundation was recorded as Friday night, the 9th Muḥarram of the year 1049 A. H. The Fort was completed in the 20th year of the Emperor's reign while he was at Kābul.

Shāhjahān enters the Fort.

Makramat Khān, then the "Superintendent of Works," asked the Emperor to come and see it, and "on the 24th Rabi II of 1058 A. H. (1648 A. D.)" Shāhjahān entered the Fort "through the gate facing the river" and held his first court in the Diwān-i-'Āmm. The Emperor arrived at the Fort with a gorgeous retinue, Prince Dārā Shikoh scattering gold and silver over his father's head till he reached the gates.[1] The Palace buildings had already been decorated, and the courtyards covered with gorgeous carpets and hangings, while "deep red Kashmīr shawls covered each seat." "The buildings became the envy of the art galleries of China." The roofs, walls, and colonnades (*aiwāns*)of the Diwān-i-'Āmm were hung with velvet, and silk from China and *Khatā*,[2] while a gorgeous canopy (*Aspak Dal bādal*), specially prepared for the

Inauguration ceremonies.

[1] A usual custom of Muhammadan Kings of India when entering the capital. Jahāngīr refers to a somewhat similar occasion in his memoirs. *Tūzak-i-Jahāngīrī*, English translation by Rogers and Beveridge, p. 259

[2] *Khata*, Chinese Turkestan.

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occasion in the royal factory at Ahmadābād, and measuring 70 *gaz* by 45 *gaz*, and costing a *lac* of rupees, was raised by "3,000 active *farrāshes*."

The canopy was supported by silver columns and surrounded by a silver railing. The hall of the Diwān-i-'Āmm was enclosed on this occasion by a golden railing, while the throne was provided with a special canopy, fringed with pearls, and supported by golden pillars, wreathed with bands of studded gems. The Emperor still further signalised the occasion by the distribution of lavish gifts. The Begam Ṣāḥibah received a *lac* of rupees, Prince Dārā, a special robe of honour, jewelled weapons, and an increase from the rank of ten to twenty thousand horse, a caparisoned elephant, and two *lacs* of rupees. The Princes Sulaimān Shikoh and Sipaihr Shikoh received, respectively, daily allowances of Rs. 500 and Rs. 300, in addition to their original pay; the Prime Minister, S'adullah Khān, a robe of honour and a *nādrī*,[1] with the rank of 7,000 horse, Rāja Bitthal Dās a robe and the rank of 5,000 foot and 4,000 horse.

Makramat Khān, under whose supervision the Fort and its buildings were completed, received the rank of *Panj Hazārī*.

The above is an abstract of Muḥammad Ṣāliḥ's account of the inauguration ceremony, and the Palace is said to have been somewhat similarly decorated on the occasion of Aurangzeb's accession.

Measurements of the Fort.

The Fort is an irregular octagon in plan with its two long sides on the east and west and the six smaller ones on the north and south. It measures about one mile and a half in circumference, the total length being some 3,000 feet and the breadth 1,800 feet. On the river front the walls are 60 feet in height, while on the land side they rise to 110 feet, of which 75 feet are above the level of the ground and the ditch. The latter is 75 feet wide and 30′ 0″ in depth. It was, writes Bernier, formerly stocked with fish, and he says that in his opinion, "a battery of moderate force would soon level the walls with the ground." "Adjoining the ditch are large gardens, full of flowers and green shrubs at all times, which contrasted with the stupendous walls, produce a beautiful effect." These gardens were still to be seen in a neglected state before the Mutiny. The low ground to the east between the Fort and the river, was used, Bernier adds, for elephant fights and parades of the royal troops; and he himself was once in danger, on this low ground, from an attack by an infuriated elephant. Manucci (*Storia*

The Moat.

[1] A jewelled dagger.

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do Mogor), writing in much the same strain, says that 'beneath the royal balconies there is, night and day, a mad elephant kept, for ostentation."

Other names associated with the building of the Fort besides that of Makramat Khān, already mentioned, are Ghairat Khān, Governor of Delhi,[1] 'Izzat Khān, afterwards Governor of Sindh, 'Alī Vardī Khān also appointed eventually to a Governorship, and two "master builders," if one may use the term, Ḥāmid[2] and Aḥmad. The Emperor is also said to have made certain modifications in the designs from time to time. Sayyid Aḥmad Khān, no doubt owing to the presence of the portrait of Orpheus in the 'pietra dura' work in the Dīwān-i-'Āmm, has assumed that some Italian architect was also employed, but it would seem probable that the Italians were responsible for this particular branch of decoration only, the general arrangement and main details of the buildings being essentially eastern. The Fort is said to have cost 100 *lacs* of rupees of which half was spent on the walls and half on the buildings within. The builders of the Fort. Cost.

Another historian, Bakhtāwar Khān, writing in the reign of Aurungzeb, also gives the cost of the various buildings as follows :—

	Lacs.
Fort and buildings within it	60
Royal mansions	28
Shāh Maḥal (Dīwān-i-Khāss), including silver ceiling and fittings	14
Imtiāz Maḥal (Rang Maḥal) with bed-chamber and surroundings	5½
Daulat Khāna-Khāss-o-'Āmm (Dīwān-i-'Āmm)	2
Ḥayāt Bakhsh garden with the Ḥammam	6
The palace of the Begam Ṣāḥibah[3] and other royal ladies	7
Bāzārs, and squares for the Imperial workshops	4
The Fort walls and moat	21

Workmen's wages amounted to ten million rupees.

Red sandstone and marble for the construction were provided by the governors and rajahs of the localities where these materials were obtainable, and the former material was also brought down in large quantities from Fathpur Sikri, by boat.

The Fort is known by many names. In the reigns of Shāhjahān and Aurangzeb it was styled *Qil'a-i-Mubārak*, (the Fortunate Citadel), or *Qil'a-i-Shāhjahānābād*, and it is under this latter title Various names of the Fort.

[1] Afterwards appointed as Governor to Ṭhaṭha where he died in 1640 A. D. (1050 A. H.).

[2] His name is still commemorated by the Kūchā Ustā Ḥāmid, near the Jāmi' Masjid

[3] The title of Jahānārā Begam, eldest daughter of Shāhjahān.

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that we find references to it in the historical works of the period. In the reign of Bahādur Shāh II, the last titular Emperor of Delhi, it was known as *Qil'a-i-Mu'alla* (the Exalted Fort). This name occurs in the works of the Urdu poets of the time and accounts for the language of the Court being styled *Urdu-i-Mu'alla*.

The buildings damaged by an earthquake and by siege.

It is recorded that in 1132 A. H. (1719 A. D.) much damage was done to the Fort and city by an earthquake lasting a month and two days.[1] The buildings were also considerably damaged during the conflicts between the Maraṭhas and Aḥmad Shāh Durrānī in 1173 A. H. (1759 A. D.). Āzād Bilgrāmī, a contemporary writer, states "that Ibrāhīm Khān Kārdī, whom Bādu had brought in his company from the Deccan, had European artillery with him. He fired at the Fort with three guns from the *Reṭī* side (lit. "sandy place"; the sandy foreshore between the Fort and river is referred to) which lies below the Fort on the east, and discharged cannon balls like rain on the Āsad Burj, Muthamman Burj and other royal buildings, which resulted in great damage to the Dīwān-i-Khāss, Rang Maḥal, Motī Maḥal and Shāh Burj; but the Fort, on account of its great strength, remained undamaged."

Many buildings demolished after the Mutiny.

It is a great pity that the lesser buildings and courts were removed after the Mutiny; for, without the courts and corridors connecting the buildings that are left to-day, the latter lose much of their meaning and beauty. The harem courts and gardens to the west of the Rang Maḥal, Mumtāz Maḥal, and the Khurd Jahān have all disappeared, together with a building known as the "Silver Palace" which stood some little distance to the west of the latter. The royal store-rooms, kitchens, and the Regalia chambers, which lay to the north of the court of the Dīwān-i-'Āmm have, together with the Mahtāb Bāgh and the western half of the Ḥayāt Bakhsh garden, given place to Military barracks and the parade ground. North again of the Ḥayāt Bakhsh garden and between it and the north outer wall of the Fort, lay the houses, harems, and gardens of the Royal Princes. These have also disappeared. In the extreme north-west corner of the enclosure were the royal stables and stores, while the areas between the arcaded street, running due north from the Delhi gate to the north end of the Mahtāb Bāgh, and the west outer wall, were occupied by the houses of the enormous retinue attached to the Court.

HE ATES. e Lahore te.

The best known of these is the LAHORE GATE, situated in the centre of the west wall, and at the end of the principal thoroughfare of Delhi, the Chāndnī Chauk. The gate is of imposing design and contains three storeyed rooms. The entrance arch, 41 feet in

[1] *Tārīkh-i-Muẓaffarī.*

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height by 24 feet, is flanked by half octagon towers crowned by open octagonal pavilions, while between the latter is a screen of dwarf, coupled Chhatrīs, crowned by seven miniature domes of white marble, and terminated by tapering minarets, topped by lanterns. Above the entrance arch is a verandah crowned by a *Chhajja*[1] but the arcade below it is now closed owing to the upper rooms of the gate having been adapted for use as officer's quarters. The 'flame shaped' battlements, which continue round the whole extent of the wall, are especially imposing.

The barbicans of Aurangzeb.

The gate is additionally protected by a barbican, the work of Aurangzeb (1658-1707 A. D.). The walls of the latter are 40′ 0″ in height, the corners of the western wall being emphasised by pavilions. The entrance gate of the barbican is on the north side and measures 40′ 0″ height by 24 feet in width, being surmounted by an embattled parapet, flanked by slender minarets. It is said that Shāhjahān, while in prison at Agra, wrote to his son Aurangzeb regarding these barbicans, saying "you have made the Fort a bride, and set a veil before her face." The original wooden drawbridge of the barbican has gone, being replaced by bridges built by Akbar II (Mughal Emperor, 1806-1837). The inscription on the arch of the bridge states that these bridges (the second being at the Delhi gate), were built in his reign under the superintendence of "Dilāwaru-d-Daulah, Robert Macpherson, Bahādur, Diler Jang." Hearn (*Seven Cities of Delhi*) says that in front of the Lahore gate was a great square, in which those Hindu nobles whose turn it was to mount guard encamped during their twenty-four hours of duty, for they never dared to trust themselves within the walls, and that in front of this square a large tank, connected with the canal in the Chāndnī Chauk and named after Lord Ellenborough, was built about 1846.[2]

Bridges built by Akbar II.

THE DELHI GATE.

The Delhi Gate lies in the southern wall of the Fort and is so called as it faces the sites of the older cities. It is similar in design to the gate previously described, but is rendered more interesting by the presence of two stone elephants, standing at either side of the entrance arch. There are many theories put forward as to the history of the original elephants and their riders, and those that derive them originally from Gwalior and Agra Fort have been proved to be without foundation. One of these theories is that their riders were the celebrated Rajpūt heroes Jaīmal and Paṭṭa, but it seems more probable that the figures were only those of *mahāwats*, and that the animals were ordinary fighting elephants. The strict religious views of Aurangzeb would not tolerate the

The elephant statues.

[1] The sloping slab cornice seen on nearly every Indian building.

[2] The cavalry camp of the mutineers (1857) was near this tank.

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presence of the statues, and he ordered their demolition. Nothing more was heard of them till 1863, when, during the demolition of certain of the old buildings for military purposes, some 125 fragments of the original statues were found buried in the Fort. Three years later, an elephant was reconstructed from these fragments and set up in the Queen's gardens.[1] In 1892 the statue was removed to a site in the Chāndnī Chauk and ten years later to another position in front of the Institute.

In 1903, at the instance of Lord Curzon, the present statues were erected, but the original fragments (now placed in the Museum) could not be re-used owing to the mutilation they had undergone. The work was entrusted to Mr. R. W. Mackenzie, an artist with experience of Indian Art, and the work was carried out from his models by Indian workmen. It is inconceivable how any doubt could ever have existed as to the original position of the statues. Bernier clearly places them at the Delhi gate, and his statement is backed up by that of de Thevenot, who saw them a few years later. The misconception seems to have arisen largely from the *Āthāru-ṣ-Ṣanādīd*, the later edition of which, published long after the author's death, places them at the Naubat Khāna. In the first edition they are placed before the Delhi gate. Carr Stephen (*Archæology of Delhi*, p. 221-3) places them before the Naubat Khāna and Keene (*Guide to Delhi*, p. 18) before the Delhi gate, the former authority being of the opinion that Bernier's descriptions of the gates are so faulty that they are correct with respect to neither. Bernier, however, after describing the statues, clearly states that "after passing through the gate at which they stand there is a long and spacious street provided with a central canal," which is also referred to by M. de Thevenot. The only street of this kind in the Fort, as is proved by the old plans, was that running due north and south from the square in front of the Naubat Khāna. Bernier's description of the Lahore gate is rendered more explicit by his reference to the "roofed street (the *Chhatta Chauk*, see page 7), leading therefrom and bordered on either side by shops." It may be added that excavation, in connection with the erection of the present statues, disclosed further overwhelming evidence in the nature of the original foundations.

The Delhi gate is protected by a barbican, similar to that in front of the Lahore gate, the bridge being also erected in the reign of Akbar II, by Robert Macpherson.[2]

[1] Opposite the Railway Station.

[2] Entered the Honourable East India Company's service in 1794, became Lieutenant, 25th April 1797, Captain, 27th February 1805, Major, 22nd January 1817, and died at Delhi, January 6th, 1823. Son of Andrew Macpherson, and born in 1774 in the Parish of Thingupie, Invernesshire, N. B.

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There are three other gates to the Fort besides those two already mentioned. One leads into Salīmgaṛh, and through it the King-Emperor passed at the State Entry of the Coronation Darbār, 1911. Near it was formerly an old bridge built by Jahāngīr in 1031 A. H. (1621 A. D.), but this was removed to make way for the present railway bridge. The old bridge had five arches and was built of rubble, springing flush from the face of the abutments. It was strengthened by a series of arched ribs, springing from corbels projecting from the faces of the abutments, and giving it an appearance of lightness with great strength. The inscription from this bridge is now in the Museum. The present bridge is, like the gate, modern. There is also a postern or wicket gate (*khiṛkī*) between the bridge and the Shāh Burj bastion. The *Khizrī*, or "Water gate" lies under the Muthamman Burj, and it was this gate which Captain Douglas desired might be thrown open, on the morning of the 11th May 1857, so that he might go down and reason with the mutineers, who had assembled on the low ground near the river.

THE OTHER GATES.

Water gate under Muthamman Burj.

Some few yards south of the Rang Maḥal is a wicket in the base of the wall, closed up, as it would seem from the character of the masonry, by the Mughals themselves. An attempt was made to excavate the ground at the back, but nothing was found, save what appeared to be a large underground drain. The story that it was known as the "King's gate," and was that which was only used to take the dead body of the King out of the palace for burial, is an attractive one, but lacks confirmation. The "Water gate" outside the Asad Burj is of an extremely interesting and characteristic design, but owing to its position is but seldom visited. The inner gateway is reached by a long flight of steps and protected by a "barbican," with an outer gate facing the river.

Water gate outside Asad Burj.

THE CHHATTA CHAUK is the roofed street referred to by Bernier which leads from the Lahore gate to a point west of the Naubat Khāna and is described by Fergusson "as the noblest entrance known to any existing palace." It measures some 266 feet in length and 27 feet in width, with a central octagonal court open to the sky. On both sides of the roadway there are 32 arched cells, at first floor and ground floor levels. Muḥammad Ṣāliḥ, Shāhjahān's Court Chronicler, refers to this arcade as the *Bāzār-i-Musaqqaf* (covered *bāzār*). The central portion, open to the sky, was styled the *Chhatta Manzil* (Vaulted Arcade), the historian adding, "that a building like this vaulted market had never been seen before by the people of India," and that it owed its conception to the Emperor, "who takes much interest in the construc-

CHHATTA CHAUK, OR VAULTED ARCADE.

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tion of buildings." Bishop Heber in describing his visit to Akbar II refers thus to the *Chhatta Chauk*. "We were received with presented arms by the troops of the palace, drawn up within the barbican, and proceeded, still on our elephants, through the noblest gateway and vestibule I ever saw. It consists, not merely of a splendid Gothic arch in the centre of the great gate-tower—but, after that, of a long vaulted aisle, like that of a Gothic cathedral, with a small, open, octagonal court in the centre, all of granite,[1] and all finely carved with inscriptions from the Qurān, and with flowers. This ended in a ruinous and exceedingly dirty stable-yard." The east end of this arcade opened on to a courtyard, some 200′ 0″ square, and surrounded by colonnades, used by the *Umarās* of the Emperor's guard. At the south-west corner of this square stood certain public buildings where the Emperor's *Nāzir* (Superintendent of the household) contracted business. In its centre was a tank fed by the canals which ran north and south towards the royal gardens and Delhi gate, respectively. On either side of the canals were the arcaded streets which have already been referred to on page 6. Bernier describes these streets as being raised about 4½ feet from the ground and being about 4 feet wide, in front of a row of arched rooms—closed arcades—running the entire length of the street. It was here that the lesser officials used to transact business and the inferior *Umarās* were wont to mount guard.

At the east side of the square, and within a stone railing, stood the NAUBAT or NAQQĀR KHĀNA (the Royal Drum-House). The tank and square, with its surrounding buildings and the stone railings, have now all disappeared, but it is hoped to be able, eventually, to demarcate their former positions by lawns and shrubberies as has been done in the case of the gardens within the present archæological area.

THE NAUBAT KHĀNA.

This building measures some 99′ 0″ by 68′ 0″ and is 56′ 6″ high from the level of the plinth to the top of the roof. The gateway measures 29′ 0″ in height by 16′ 0″ in width. It must be remembered that the present plinth of this building is modern, the visitor being intended to enter at the level of the Dīwān-i-'Āmm court. The plinth is shortly to be removed, so that it will be possible to enter at the original level. Buildings formerly existed at the north and south ends of the Naubat Khāna, but these were taken away after the Mutiny, their position being now indicated by shrubberies. "Five times a day the royal band used to play in this lofty hall; on Sundays the music was kept up the whole

[1] The masonry is actually brick, externally plastered.

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day because it was a day sacred to the sun, and the same honour was paid to the day of the week on which the King was born." Bernier, who was at first deafened by the noise, and found it unbearable, eventually grew accustomed to the royal music and discovered "grandeur, solemnity, and even melody in it." A "Naubat Khāna" is often found in royal palaces. The one at Fathpur Sīkrī is well known, while they are often seen, and still used, in the residences of Indian chiefs. The building served as quarters for officers stationed in the Fort till 1907, when the modern additions were removed and the building restored as far as possible to its former appearance.[1] The two small rooms in the basement on either side of the entrance, now occupied by the Caretaker, were used, till 1911, as the Museum of Archæology.

DĪWAN-I-'ĀMM.

Passing through the entrance of the Naubat Khāna, the visitor reaches the court of the Dīwān-i-'Āmm (Hall of Public Audience). Underneath this entrance none could pass mounted except Princes of the Blood Royal; ambassadors, ministers and grandees of the highest dignity, alighted here and walked on foot. Even in the last days of a subsidised Mughal Emperor, the entrance was jealously guarded, and when Mr. Francis Hawkins, Resident at Delhi (a gentleman whose energy went beyond his discretion) was removed from his appointment, the most serious charge against him was that he had violated the sanctity of the royal palace, by riding under the gateway of the Naubat Khāna.

Court of the Dīwāni-'Āmm.

The court, now reached, was originally 550′ 0″ in length by 300′ 0″ in width, and surrounded with arcaded apartments, which, says Bernier, "have no buildings over them." Each "bay" of the arcade was separated by a wall, "yet in such a manner that there is a small door to pass from one to the other." The rooms were two deep, raised almost $3\frac{1}{2}$ feet from the ground, and were occupied by the *Umarās* on duty. They were decorated on special occasions, and it is said that the *Umarās* vied with each other in the splendour of their adornment. These surrounding arcades were demolished after the Mutiny, but their former position has now been indicated by shrubberies.[2] Outside to the north of the courtyard stood the imperial kitchen.[3]

The great hall of the DĪWĀN-I-'ĀMM was the central feature of the eastern side of the court, while to the north of this building was a gate leading to the forecourt in front of the Dīwān-i-Khāss.

[1] Preparations are now being made to adapt the upper storey for the temporary accommodation of the Indian War Museum.

[2] It should be remarked that the shrubbery on the south side of the court is, of necessity, placed further north than the original arcade, owing to the presence of the military road outside the railings to the south.

[3] Keene; "*Guide to Delhi*," p. 125.

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In the days of the later Mughal Empire the appearance of the Dīwān-i-'Āmm was not improved by the addition, behind it, of the houses of the "Heir apparent," built in the bastard European style of architecture which was fashionable in India during that period. The building, which has lost its original covering of white shell plaster and gilding, stands on a plinth some 4′ 0″ in height and measures 80′ 0″ long by 40′ 0″ in breadth; it is some 30′ 0″ high from the top of the plinth to the level of the roof parapet, the north-west and south-west angles of which are emphasised by dwarf pavilions. The building is open on the north, south and west, the outer walls being shaded by a deep *chhajja*. Above the latter can still be seen traces of the old external decoration. The inside of the hall is divided up by columns into three aisles, each of nine compartments, each compartment being formed by four pillars some 16′ 0″ apart, which support engrailed arches ranging from the back wall to the façade of the building.

The throne of the Dīwān-i-'Āmm.

The western façade is adorned with ten columns supporting engrailed arches. Set in a recess in the centre of the back wall is a marble "baldachino" known as the *Nashīman-i-zill-i-ilāhī* (the seat of the shadow of God), panelled with marble and inlaid with precious stones. In front of this "baldachino" stands a four-legged marble dais, measuring some 7′ 0″×3′ 0″, said to have been used by the *Wazīr* when presenting petitions to the Emperor seated under the canopy above. A railed space, some 40′ 0″ in length by 30′ 0″ in width, was reserved round the "baldachino" for the highest grandees of the Empire. The remainder of the hall served as another reserved space for yet another rank of officials, while outside the Dīwān-i-'Āmm was the *Gulāl-Bāṛī* (red enclosure), reserved for minor officials, the general throng attending the *darbār* standing outside this last enclosure. The hall, when Bishop Heber saw it in 1824-1825, "was full of lumber of all descriptions, broken palanquins and empty boxes, and the throne so covered with pigeon's dung, that its ornaments were scarcely discernible."

Pietra dura work.

The pietra dura work of the recess behind the "baldachino" is worthy of special notice. The original work is said to have been executed by Austin de Bordeaux, a renegade European jeweller, and the designs represent flowers, fruit and birds in a most natural manner. Among the other designs the Frenchman introduced a picture of Orpheus playing on his lute, with a lion, a hare, and a leopard lying charmed at his feet. This tablet was removed after the capture of the Palace in 1857, and placed in the South Kensington Museum, while eleven others of the inlaid panels were also removed. They were restored to their original position some

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years ago at the instance of Lord Curzon. It was fortunate that old drawings of the mosaics existed, from which it was possible to restore the decoration to its original form, and for this purpose an Italian 'mosaicista' was brought specially to India and the work completed in 1909.

The following note taken from the Archæological Survey Annual for 1902-03, and written by Sir John Marshall, is of special interest in this connection.

> "The decoration is more particularly famous for the panels of black marble, inlaid with a variety of coloured stones in designs of birds and flowers. These panels are the sole examples in India of this particular form of technique. The most justly famous among them is one representing the figure of Orpheus sitting under a tree and fiddling to a circle of listening animals.[1] At the time of the Mutiny in 1857 a good many of these panels, which are quite small, were picked out and mutilated. Twelve of them including the representation of Orpheus as well as four larger and seven smaller panels, were appropriated by Captain (afterwards Sir John) Jones, and sold by him for £500 to the British Government, who deposited them in the South Kensington Museum.
>
> "In 1882 all the inlay in the lower half of the back wall of the recess was restored under the supervision of Major H. H. Cole, the then Curator of Monuments in India. The work was executed with great care, but unhappily some of the stones employed in the new work matched badly with the originals. The difference between them is particularly noticeable in the background of the panels; a greyish black Indian marble having been used to replace the intensely black and finely grained marble, only procurable in Italy. In some other respects also the new work is inferior, the designs being harsher and the technique coarser. The upper portion of the wall was not repaired by Major Cole, because he hoped that the panels in England might be recovered at some future time and it appeared inexcusable to resort to artificial renovation so long as the originals were known to exist elsewhere. During the past year (1902) a strong appeal for the recovery of these panels was made by the Government of India,

[1] A beautiful chromo-lithograph of this is published by Major H. H. Cole in his report on Delhi in the series entitled the "Preservation of National Monuments in India." He also gives a general view of the back of the throne.

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and the trustees of Victoria and Albert Museum were kind enough to agree to their return.

"It had been hoped that the plaques would reach India in time to be restored for the ceremonies of the Investiture of the two Indian Orders held in connection with the Delhi Darbar,[1] and the occasion would indeed have been an appropriate one on which to emblemise, by the restoration of the mosaics, the generous policy which the Government have now adopted towards the relics of antiquity, as opposed to the proverbial vandalism of earlier days. Unfortunately the plaques did not arrive till the last days of December, and their restitution had to be deferred until after the Darbar. They have now been replaced behind the throne; and many other panels, also in the upper portion of the walls, have been cleaned of the lac with which they were covered, and their mutilated surfaces repolished. There still, however, remain some of the gaps where panels are partly or wholly missing, and these will be gradually filled up, as opportunity offers, in accordance with the ancient designs. But it will take some time before the precise stones used can be identified and procured from Europe, and it will very probably be found necessary to get the panels executed in Florence or to obtain artists from Italy to do the work in India.

"Something remains to be said concerning the date and style of these plaques. Tradition has it that the decoration of the throne was the workmanship of Austin de Bordeaux, the celebrated French artificer, who is said to have been employed by the Emperor Shāh Jahān, both on the palace at Delhi and on the Taj at Agra. The figure of Orpheus, indeed, is pointed out by the native guides as a portrait of Austin de Bordeaux himself. The story seems apocryphal. Perhaps it was suggested by the obviously Italian character of the panel designs; but it should be observed that the black marble of their backgrounds and the majority of the inlaid stones are of Italian, and not Indian provenance and it is not unreasonable to suppose, therefore, that they were not only designed but actually executed in an Italian studio and afterwards imported into this country."

[1] Lord Curzon's Darbar of 1903.

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"The arabesques, on the other hand, which decorate the interspaces between the panels, are of pure Indian style and Indian workmanship without a vestige of foreign influence. Mr. Havell, referring to the decoration of the Delhi Throne, in a recent article in *The Nineteenth Century and After*, has suggested that it has been wrongly attributed to Shāhjahān's reign and ought rather to be inferred to the early part of the eighteenth century. He rightly insists on its inferiority in point of style to that of the Taj at Agra, and further argues that the naturalistic representations of birds and animals, had they existed in the time of Aurangzeb, would scarcely have been left unmutilated by that iconoclast Emperor. The latter argument is not convincing, since parallel instances may be cited of other figures which must often have been seen by Aurangzeb, yet managed to escape violation at his hands. Nor ought mere inferiority of style to be pressed too far as evidence of date. The *pietra dura* of Shāhjahān's reign in the Lahore Fort is equally inferior to that of the Taj, and in the case of the Delhi Throne the task of the artists was a peculiarly difficult one. The basis of this decoration was a number of square and oblong panels of varying sizes and of wholly unfamiliar styles. There are few artists who could create an harmonious design out of such material, and least of all a Mughal artist, tied down by the strictest traditions of form and colour, both alike unsuitable to the task he had to perform. With such limitations it is not surprising that the result appears grotesque, or that the arabesques, which serve to combine the panels into a general scheme of decoration, compare unfavourably in style with those of the Taj."

Ceremonials in the Dīwān-i-Āmm.

The European traveller Bernier (*Travels in the Mogul Empire*, pp. 261-3) has left an excellent account of the ceremonials for which the Dīwān-i-'Āmm was used.

"During the hour and a half, or two hours, that this ceremony (the *darbār*) continues, a certain number of the royal horses pass before the throne, that the King may see whether they are well used and in a proper condition. The elephants come next, their filthy hides having been well washed and painted as black as ink, with two large red streaks from the top of the head down to the trunk, where they meet. The elephants

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are covered with embroidered cloth; a couple of silver bells are suspended to the two ends of a massive silver chain placed over their back, and white cow tails[1] from Great Tibet, of large value, hang from the ears like immense whiskers. Two small elephants, superbly caparisoned, walk close to these colossal creatures, like slaves appointed to their service. As if proud of his gorgeous attire and of the magnificence that surrounds him, every elephant moves with a solemn and dignified step; and when in front of the throne, the driver, who is seated on his shoulder, pricks him with a pointed iron, animates him and speaks to him, until the animal bends on one knee, lifts his trunk on high and roars aloud, which the people consider as the elephant's mode of performing the *taslim* or usual reverence.

"Other animals are next introduced; tame antelopes kept for the purpose of fighting with each other;[2] *Nilgaux*,[3] or grey oxen, that appear to me to be a species of elk; rhinoceroses; large *Bengale* buffaloes with prodigious horns which enable them to contend against lions and tigers; tame leopards, or panthers, employed in hunting antelopes; some of the fine sporting dogs from Usbec, of every kind, and each dog with a small red covering; lastly every species of the birds of prey used in the field sports for catching partridges, cranes, hares, and even, it is said, for hunting antelopes, on which they pounce with violence, beating their heads and blinding them with their wings and claws."[4]

"Besides this procession of animals, the cavalry of one or two of the *Omrahs* (*Umarās*) frequently pass in review before the King; the horsemen being better dressed than usual, the horses furnished with iron armour, and decorated with an endless variety of fantastic trappings."

"The King takes pleasure also in having the blades of cutlasses tried on dead sheep, brought before him without the entrails and neatly bound up. Young

[1] The tails of the Tibetan ox or yak, called chowries, still in common use in India.

[2] The Emperor Akbar was very fond of this sport, and in the *Āīn-i-Akbarī* (pp. 218-222) will be found full details regarding the kinds of fighting deer, how they fought, together with elaborate regulations as to the betting allowed on such encounters.

[3] Literally "blue cows," the Hindustani name being Nilgau.

[4] See the illustration of a Barkút eagle attacking a deer, from Atkinson's 'Siberia,' at p. 385, Vol. I, of Yule's *Marco Polo*, second ed., 1875, and the Chapter (XVIII, same vol.) on the animals and birds kept by the Kaan for the chase.

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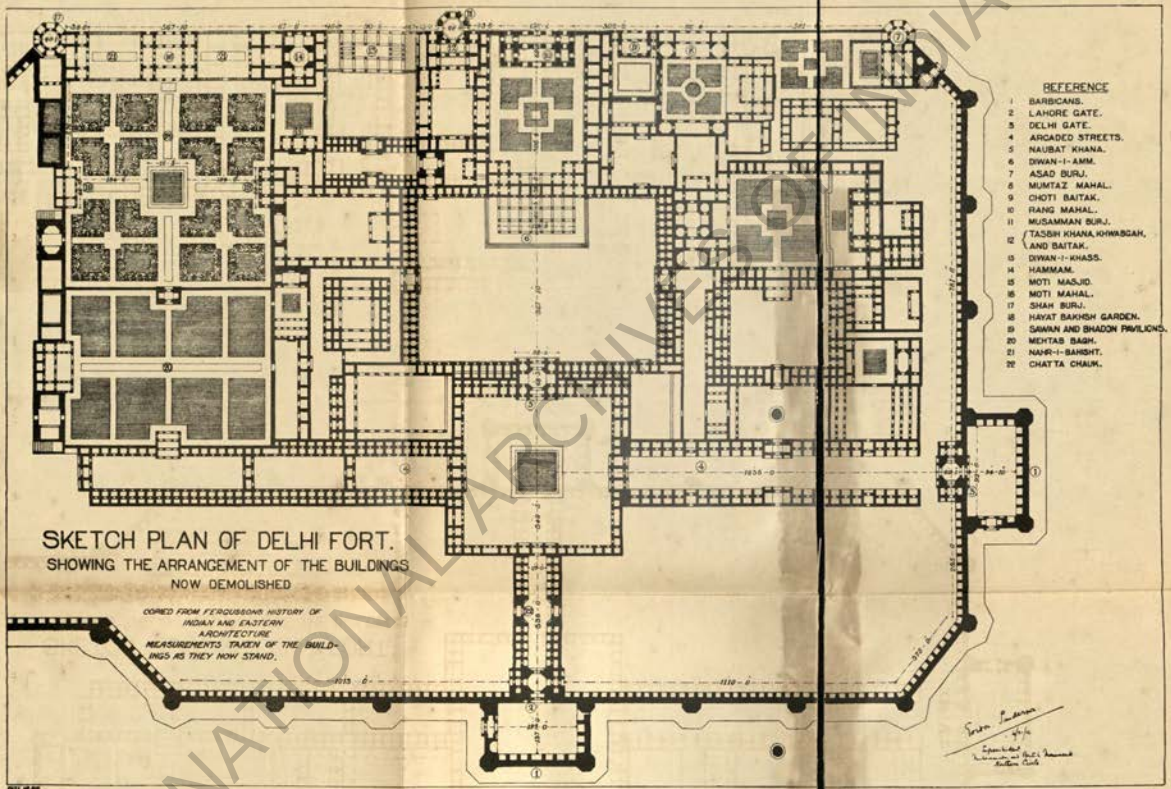

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Omrahs, *Mansebdars*, and *Gourze-berdars*[1] or mace bearers, exercise their skill and put forth all their strength to cut through the four feet, which are fastened together, and the body of the sheep at one blow."

"But all these things are so many interludes to more serious matters. The King not only reviews his cavalry with particular attention, but there is not, since the war has been ended, a single trooper or other soldier whom he has not inspected, and made himself personally acquainted with, increasing or reducing the pay of some and dismissing others from the service. All the petitions held up in the crowd assembled in the *Am-Kas* (the Dīwān-i-'Āmm) are brought to the King and read in his hearing; and the persons concerned being ordered to approach are examined by the Monarch himself, who often redresses on the spot the wrongs of the aggrieved party."

The verandah on the first floor level at the back of the Dīwān-i-'Āmm and overlooking the garden in front of the Rang Maḥal is said to have been covered with shell-plaster, "polished like the brightness of the morning."

As has been previously mentioned, a gateway lay to the north of the Dīwān-i-'Āmm, leading to the first of the twin courtyards in front of the Dīwān-i-Khāṣṣ, now no longer in existence, but demarcated, like the other court immediately in front of that building, by shrubberies and lawns. In the middle of the western wall of this 'first courtyard' was a gate which gave entrance to the court of the Dīwān-i-Khāṣṣ, the Hall of Special Audience. A red cloth awning was stretched in front of this gateway and gave it the name of *Lāl Pardah* (red screen).

The buildings on the East wall of the Fort in the enclosed area.

The MUMTĀZ MAḤAL, now the Museum, is the southernmost of these buildings. Formerly one of the apartments of the Royal princesses, it has served as a Military prison[2] and was also used, till recently, as the Sergeants' Mess, and for this purpose its original appearance had been completely changed. Old drawings and photos of the Fort, dating prior to the Mutiny, show it to have

MUM MAH

[1] *Gurz-bardár*, from *gurz*, a Persian word, signifying a mace or war-club.
[2] Carvings by the prisoners can be still seen on the marble dadoes.

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been a structure not unlike the neighbouring Rang Maḥal, covered with white shell plaster, and with the angles of its roof emphasised by dwarf pavilions, the external walls being shaded by a deep *chhajja*. The latter has been reconstructed and, within, some of the original "glass" decoration has been exposed. It will be noticed that the plinth of the building is still buried, but this is shortly to be removed and the neighbouring ground laid out to the same level as the lawns to the north. Excavations made in 1911 revealed the remains of a small marble fountain basin in front of the building on the west side. It was also known as the 'Chhoṭa Rang Maḥal' or 'Khāṣṣ Maḥal' and it seems not unlikely that the water channel, which runs through the centre of the other buildings to the north, continued past it also. That the space between the Mumtāz Maḥal and the Rang Maḥal was filled with buildings in the days of the last Emperor of Delhi is evident from old photographs taken before the Mutiny, while it is probable that in the days of Shāhjahān, another smaller pavilion existed here,[1] the range of arcades, which formed the south boundary of the garden of the Rang Maḥal, probably continuing through to the front of the east wall of the Fort; any interspaces between the buildings on the east outer wall would be filled with marble screens to prevent the inmates of the harem being seen from the low ground between the Fort and the river.

"Last of all the seraglio buildings on the river face (*i.e.*, between the Mumtāz Maḥal and the Asad Burj) there came the Khurd Jahān (Little World). Why it was so called we do not know, unless within it there were collected different flowers and trees and all that was necessary to make it like the world on a small scale."[2]

The RANG MAḤAL (Palace of Colour), so called from the coloured decoration with which it was formerly adorned, lies immediately to the north of the Mumtāz Maḥal. The building was the largest of the apartments of the Royal Seraglio, and in the time of Shāhjahān was known as the Imtiyāz Maḥal (Palace of Distinction). The Court Chronicler writes of it that, "in excellence and glory it surpasses the eight-sided throne of heaven, and in lustre and colour it is far superior to the palaces in the promised paradise." It is indeed to be regretted that so few traces

[1] Hearn, *Seven Cities of Delhi*, states that a small pavilion known as the Small Sitting Place (*Chhoṭī Baiṭhak*), and a modern building, the *Daryā* (River) *Maḥal* occupied this space. The latter building, he says, was more ornate than the others, and had a pediment on the river face surmounted by the figure of a bird. An old photograph of the Fort taken before the Mutiny shows a building of this design.

[2] *Op. cit.*, p. 161.

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remain of its former elaborate decoration. The building measures externally 153′ 6″ by 69′ 3″, and, within, engrailed arches on twelve-sided piers divide the main apartment into fifteen bays, each 20′ 0″ square. These are cased in marble for 11′ 0″ of their height, the point at which the arches spring from plaster capitals. On the soffits of the outer row of arches can still be seen remains of the old gilded decoration in the form of conventional flowers. It is said that the original ceiling was of silver, but that in the reign of Farrukhsīyar it was taken off " to supply a pressing need," and replaced by one of copper. In the reign of Akbar II this latter was also removed and a wooden one put up. Muḥammad Ṣāliḥ, writing in the reign of Shāhjahān, describes the original ceiling as being " gilded and ornamented with golden flowers." The eastern wall is pierced by five windows overlooking the river, and from there the ladies of the *zanāna* could catch a glimpse of the elephant fights which took place on the sandy foreshore at the foot of the walls, and of which the Emperor was an interested spectator in the adjoining Muthamman Burj. Four of these windows are now filled with rectilinear tracery of a type reminiscent of Chinese decoration. The original glazing, which has entirely disappeared, was probably of panes of glass of that vivid colour still seen in one of the windows of the Ḥammām. The central window opening is enclosed by a frame of flamboyant swirls, bulbous domes, and surmounted by an umbrella shaped finial, the whole an unpleasant foretaste of the decadence which set in with the reign of Aurungzeb. At each end of the main hall are smaller chambers, surrounded by a marble dado, waist-high, the upper portions of the walls being relieved by conventional floral designs in plaster, set off with " glass " borders. Down the centre of the building runs a marble water channel with a central fountain basin, buried, till 1908, under a modern stone floor. 'Alī Mardān's canal, tapping the Jamna some six miles above Delhi to obtain the necessary fall, fed the Palace with many streams of limpid water which filled the tanks, played the fountains and poured " like a quick fall of stars " before the illuminated candle niches. But of all these waterways the most favoured was the Nahr-i-Bahisht (Stream of Paradise) so called by Shāhjahān himself.[1] Falling in a rippling cascade down the marble chute in the Shāh Burj pavilion and flowing along the terrace that bordered the Ḥayāt Bakhsh garden, it traversed the chain of stately edifices that lined the eastern wall of the Palace—Ḥammān, Dīwān-i-Khāṣṣ and Khuwābgāh—

Nahr-i Bahisht.

[1] Manucci, *Storia do Mogor*, Irvine's translation, Vol. I, p. 184, says " that Shāhjahān ordered some beautiful fish to be thrown into the canal with gold rings in their heads, each ring having one ruby and two seed-pearls."

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silently gliding beneath the Mizān-i-'Adl,[1] across a sun-bathed court into the cool of the Rang Maḥal. Thence, still southward, it passed through the little Rang Maḥal, Mumtāz Maḥal, and other buildings of the Imperial *zanāna*, sending out shoots to feed the many channels and fountains. As Bernier (*Travels in the Mogul Empire*, p. 267) tells us, "nearly every chamber has its reservoir of running water at its door; on every side are gardens, delightful alleys, shady retreats, streams, fountains, grottoes, deep excavations that afford shelter from the sun by day, lofty divans and terraces, on which to sleep cool at night." Elsewhere he says, "The water of the canal ..... runs into the Seraglio, divides and intersects every part and falls into the ditches of the fortification."[2] Still despite the spoliation of its jewels and the lack of dancing waters, this fountain basin is by far the most charming of all those in the Fort, and is perhaps only surpassed in elegance by the fountain in the Muthamman Burj pavilion at Agra. Saiyyid Aḥmad says of the Rang Maḥal, "it has a tank, the beauty of which baffles description. It is made of marble and fashioned in such a way that it resembles a full blown flower. Its inlay of flowers and foliage in various coloured stones has been so finely executed that it is beyond the power of anyone to describe it. Although the tank is seven *gaz* square yet it is of very little depth. It is just like the palm of a hand. The particular beauty of this is that, when it is full of rippling water, the foliage of the inlay work appears to wave to and fro. In its centre is a beautiful flower like a cup of marble; moreover, on each curving point and arched cusp, flowers and leaves of coloured stones spring from creeping plants, and creeping plants from flowers and leaves. Within the cup you will find a hole through which the water bubbles up from a hidden channel underneath. The sheet of water falling from the edges of the cup and the waving of the plants and flowers under the dancing water are nothing less than a scene of magic."

Marble basin.

Muḥammad Ṣāliḥ is likewise moved to enthusiasm: "In the midst of the Central Hall is a shallow tank designed on geometrical principles. It is decorated with points and on each point there is a hole through which the water of life bubbles out from the jets fixed above, enhancing the pleasantness of the surroundings and the beauty of the building. The mind of man, on perceiving this wonder, is amazed. The channels on the four sides, fed from this sunlike fountain, pour their waters in the form of a cascade, into a basin made of one piece of marble, and on leaving

[1] "Scales of justice."

[2] *Archæological Survey of India Annual Report*, 1907-1908, pp. 23—30.

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this the water flows into the main channel running into the midst (of the gardens). The stone of this basin is one of the wonders of the world and came from the Makrāna Quarry. By order of His Majesty, the basin was made square, four *gaz* by four *gaz*[1] with a depth of one and a half *gaz*. It was brought by means of a hundred mechanical contrivances from Makrāna to Shāhjahānābād, a distance of one hundred *kiroh*,[2] and placed here."

The basin, to which the historian refers, stood for a long time in the Queen's Gardens, but was brought back in 1911 to the palace gardens and now stands in the centre of the large tank between the Rang Maḥal and the Dīwān-i-'Āmm. The courtyard, of which this large tank was the central feature, was formerly "so extensive that it was laid out as a garden with channels dotted with jets." Bishop Heber writing in the early years of the 19th century says that, "all these were destroyed when he saw the Fort and that instead wretched houses had been built." "The gardens contained an orchard 107 *gaz* × 115 *gaz*,[3] which was surrounded by a screen-like railing of redstone. The railing was decorated with two thousand finials of gold. On the three sides of the courtyard beautiful houses and charming arcades were built, seventeen *gaz* wide, and below the plinth of the palace, on the west side, lay this garden." The bottom of the large central tank, which measures 126′ 0″×123′ 6″, is now grassed, owing to the impossibility of allowing water to stand there, and so encouraging the breeding of mosquitoes.

The foundations of the houses and arcades, on the north and south side of the garden, were located by excavation and are now represented by shrubberies, as is the colonnade on the third or west side, a continuation of the projecting block at the back of the Dīwān-i-'Āmm, and through which the Emperor passed from his private apartments to the Hall of Justice. "From the back of the King's private entrance to the *jharoka*[4] there is an open gallery overlooking the garden; and thence a winding stairway leads direct to the colonnade below. It is easy to imagine the Emperor, wearied with the ministration of justice or bored by an audience of foreign embassies, seeking relief in the cool of the Rang Maḥal,

[1] These dimensions give the size as 10′ 5″ square×4′ 0″ deep. Actual size is 10′ 3″ square×3′ 10″ deep.

[2] *Kiroh*=about 2½ miles. Distance as the crow flies between Makrāna and Delhi is about 186 miles.

[3] The measurement of the *gaz* varies considerably. It is between 2′ 8″ and 3′ 0″. It consists of two *hāth*, the *hāth* being the distance between the point of the elbow, when bent, and the tips of the fingers.

[4] Lit. Showing place.

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resplendent with colour and marble, and musical with the subdued murmur of falling waters, and the voices of his chosen ladies." Sayyīd Aḥmad states that, "near the corners of the Rang Maḥal were four stone kiosks which could be closed with *tattis* in the summer-time, and turned into *Khas*[1] *Khāna*."

"It is fortunate that the historian has added a drawing[2] of the façade from which we are able to learn what these kiosks were like, for no vestige of them now remains except their foundations. They were by no means an improvement to the façade with their pointed roofs and slender shafts. The drawing—more accurate than the description—shows but two of these pavilions at the ends of the main façade. The accuracy of Saiyyīd Aḥmad's description may also be doubted on other points; for it appears that there was never any marble above the necking of the piers and what he mistook for inlay was painted ornament."

"From this illustration we also learn that the arches of the façade were filled in with an open *pardah* screen, apparently of marble, the traces of which are still to be seen; while the centre opening was further elaborated by the introduction of moulded columns and a triple arch. Above the small screens were small windows filled with *jalī*, similar to that seen on the north and south façades. Altogether, the illustration makes the west front of the Maḥal more attractive than it is now under its coat of white-washed plaster."[3] Carr Stephen and Keene both erroneously describe it as being built of "grey sandstone."

SCALES OF JUSTICE.

"From the Rang Maḥal the Emperor passed across a narrow court to his private apartments under the arcade before the Scales of Justice. This façade is of white marble and now shows no signs of having been coloured, all traces having been bleached out by the blaze of sun which beats fiercely on this wall throughout the day. Until recently there was a buttress wall jutting out some 3′ 0″ into the court at the west angle. A careful inspection showed that neither this wall nor the one on a corresponding position on the north side of the Khāṣṣ Maḥal[4] was structurally necessary, and as they were of obviously modern construction, the core being of modern bricks, they were demolished. It was then discovered that considerable traces of colour remained high up the wall where the protecting *chhajja* had cast its shadow. From this it is safe to presume that the elaborate painted decoration

[1] A kind of coarse grass of which *taṭṭis* are made.
[2] The original drawing may be seen in the Museum (Catalogue Ed. 1913, J. 23).
[3] *Op. cit.*
[4] Another name for the collection of rooms known as the Tasbīḥ Khānah, Khwābgāh, and Baiṭhak.

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of the interior originally extended to the exterior of the building, and I believe this instance to be unique."[1]

The following account of these buildings has been taken from Carr Stephen's *Archæology of Delhi*.—" Corresponding to the Royal Baths, and on the south of the Dīwān-i-Khāṣṣ, is a suite of rooms, built throughout of marble and divided into two equal parts by the marble canal already described. Between these rooms and the Dīwān-i-Khāṣṣ the pavement is of marble and is about 46 feet wide." TASBĪḤ KHĀNAH, KHWĀBGĀH AND BAIṬHAK.

" The Tasbīh Khānah,[2] Khwābgāh[3] and Baiṭhak[4] form one building ; the former consists of a row of three rooms facing the Dīwān-i-Khāṣṣ ; a second row of three rooms behind this is known as the Khwābgāh, and the adjoining hall, which is about half the width of the Khwābgāh, was indiscriminately called the Baiṭhak or the Tosha Khānah (Ward Robe). The three apartments together may be equal in size to the Dīwān-i-Khāṣṣ." At the suggestion of the Hon. Mr. W. M. Hailey, Chief Commissioner of Delhi, two of the western apartments are now furnished in the Mughal manner, so that visitors to the Palace may be able to repicture the interior arrangements of a room during this period. " There is nothing particular to notice either in the Tasbīh Khānah or the Baiṭak ; the Khwābgāh, however, deserves more than passing attention. As already stated, it is the name of the three rooms in the centre of the building ; the middle room is about 45 feet by 18 feet, those on its east and on its west are about half its size. The three rooms communicate with one another through arched doors in the centre room ; the walls were at one time inlaid with precious stones which were pillaged by the attendants of the court, and have recently been repaired with great success.[5] In the northern and southern walls of the centre room there are arched doors covered with marble screens, and under the arches there are inscriptions of historical fame—the work of Sā'dullah Khān, the Wazīr of Shāhjahān. On the outer eastern face of the door of this room there is another inscription, which is also said to be the work of the same author." The Mughal room.

English translation of the inscription on the southern and northern arches.—" Praise be to God ! how beautiful are these painted mansions and how charming are these residences : a part of the high heaven. When I say the high-minded angels are desir-

[1] *Op. cit.*
[2] Place where the praises of God are recounted by the telling of beads.
[3] House of dreams.
[4] Place where people meet to sit and converse.
[5] Mr. Carr Stephen wrote his book in 1876.

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ous of looking at them, if people from different parts and directions (of the world) should come (here) to walk round them as (they walk) round the old house (*Ka'bah*), it would be right ; and if the beholders of the two worlds should run to kiss their highly glorious threshold as (they kiss) the black stone (of *Ka'bah*), it would be proper. The commencement of this great fort, which is higher than the palace of the heavens and is the envy of the wall of Alexander ; and of these pleasant edifices and of the garden of Hayāt Bakhsh, which is to these buildings as the soul is to the body, and the lamp to an assembly ; and of the pure canal, the limpid water of which is to the person possessing sight as a world-reflecting mirror, and to the wise the unveiler of the secret world ; and of the water-falls, each of which you may say is the whiteness of the dawn or a tablet of secrets of the Table and the Pen (of Fate) ; and of the playing fountains, each of which is a hand of light rising to greet the inhabitants of heaven ; or they are bright pearls alighting to reward the inhabitants of the earth ; and of the tanks, full of the water of life (and) in its purity the envy of the light and the sun ; announced on the 12th Dhilḥijjah in the 12th holy year of the ascension, corresponding to 1048 A. H., the delightful tidings of happiness to the people of the world. And the completion of it, which was effected at the expense of 50 *lacs* of rupees, on the 24th Rabī'u-l-Awwal in the 21st year of the auspicious ascension corresponding to 1058 A. H., by the glory of the happy feet of the sovereign of the earth, the lord of the world, the founder of these heavenly, pleasant mansions, Shihābu-d-dīn Muḥammad, the second Lord of felicity, Shāhjahān, the king champion of faith, opened the door of favour to the people of the world."

English translation of the verses on the wall[1]—

"May the Emperor of the world, Shāhjahān, by his good fortune, the second Lord of felicity,

In the royal palace, with great magnificence, ever be like the sun in the sky.

As long as foundation is indispensable with this building,

May the palace of his good fortune touch the highest heaven.

Wonderfully charming is this adorned palace :

A paradise embellished with a hundred beauties.

Dignity is a sign to represent its greatness ;

Felicity is in the embraces of its hall.

(Incomplete.)

[1] The inscription has become obliterated and is now no longer traceable.

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(Incomplete.)

Whoever rubbed his head sincerely against its foot,

His honour increased, like (the swelling) of the (river) Jun (Jamna).

When time erected its wall,

It set a mirror before the face of the sun.

The face of its wall is so decorated, that it demands from the painters of

China a fee for showing its face.

Time extended such an (affectionate) hand over its head (was so favourable to it),

That the sky borrowed height from it.

In its playing fountains, and river-like tank,

The sky washed its face with the water of the earth.

As it is the seat of a just King,

So it is the King of all other buildings."

Count Von Orlich, visiting Delhi in 1843, says that "before the entrance to the residence of the Great Mogul, a pair of scales are suspended over a stone seat, to indicate that justice alone is administered in these apartments. As we entered the halls which lead to the King's apartments we saw a rhapsodist, who was sitting before the bed chamber of the Great Mogul, and relating tales in a loud voice. A simple curtain was hung between him and the King, who was lying on a couch and whom these tales were to lull to sleep."[1]

MUTHAMMAN BURJ.

Adjoining the eastern wall of the Khwābgāh, and overlooking the river, is the domed balcony (also known as the *Burj-i-Tila* or Golden Tower) which Bernier, who, however, had never seen it, praised so extravagantly. It is octagonal in plan and roofed by a dome, once cased in gilded copper and now covered with lime plaster. Three out of the eight sides of this room are cut off by the Khwābgāh, and of the remaining five sides which overlook the river, four are filled with marble screens; in front of the fifth, which is in the middle of the Burj, there is a small covered balcony added by Akbar II, who also engraved an inscription on its arches and another on the western doorway of the Muthamman Burj.

English translation of the first inscription:

"Praise and thankfulness are worthy of the Lord of the world,

[1] *Travels in India, Von Orlich*, Vol. II, p. 25.

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Who made such an Emperor the King of the age ;

Who is descended from a royal father and grand-father, down from Timur ;

(And is the) protector of the world, having his court (as high as the) sky, and soldiers (as numerous as) stars.

Mu'īnu-d-dīn Abu-n-nasr Akbar, Ghāzī,

King of the world, conqueror of the age, and shadow of God,

On the face of Muthamman Burj, built anew such a seat that the sun and the moon sewed (fixed) their eyes on it.

Sayyidu-sh-Shu'arā was ordered to record its date,

So that the black letters may endure on the white (ground).

The Sayyid wrote the chronogram of this building :

'May the seat of Akbar Shāh be of exalted foundation. The year 1223.' "

English translation of the second inscription :

" O (thou who hath) fetters on your legs, and a padlock on your heart, beware !

And O (thou) whose eyelids are sewn up, and whose feet are deep in the mire, beware !

Thou art bound towards the west ; but thou hast turned thy face to the east.

O traveller ! Thou hast turned thy back on thy destination, beware ! "

" The eunuchs," says Bernier, writing of the Muthamman Burj, " speak with extravagant praise of a small tower, facing the river, which is covered with plates of gold in the same manner as the towers of Agra ; and its azure apartments are decorated with gold and azure, exquisite paintings and magnificent mirrors."

A projecting *burj* of this type on the east wall was a common feature of the Mughal palace and is found at Agra and Lahore. From it the Emperor used to appear to the throngs gathered below the Fort, while at Agra Jahāngīr caused a rope of bells to be suspended between the *burj* and the ground below, for the use of suppliants.

The *Darshan* ceremony.

The *darshan* or 'showing' ceremony was considered a most important procedure and was observed daily by the earlier Mughal Emperors. In a court where an Emperor's life was in hourly

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danger such a ceremony was the only sign by which his subjects knew whether he was alive. We read of one Emperor being even carried to the *jharoka* on his sick bed rather than omit the observance of the *darshan*. It is interesting to note that the ceremony was revived at the Coronation Darbar, Their Imperial Majesties King George V and Queen Mary appearing from the balcony of the Muthamman Burj to the crowd gathered on the ground between the Fort and the river.

The *Khizrī* gate below it has already been commented upon.

The original dome of the Muthamman Burj was of quite different section from the present one and was, as stated above, covered with copper. It was removed after the Mutiny, together with the copper coverings of the pavilions at the corners of the roof of the Dīwān-i-Khāss, and sold by the Prize Agent.

DĪWĀN-I-KHĀSS.

The DĪWĀN-I-KHĀSS was also known as the Shāh Mahal (Royal Palace). It, like the Dīwān-i-'Āmm, had a courtyard in front of it to the west, enclosed by colonnades. The entrance to the courtyard nearest the Dīwān-i-Khāss and known as the *Jilau Khāna* was on the west, and was kept screened by a red curtain, the *Lāl Pardah*. In this court the *Umarās* and nobles of highest rank were wont to wait on the Emperor. It was removed, together with the lesser court, which lay immediately to the west, after the Mutiny, but from old plans and ample evidence forthcoming in the excavations, it has been possible to lay out the present lawns and shrubberies so as to demarcate with accuracy their former alignment.

The hall is 90′ 0″ in length and 67′ 0″ in width, and stands on a plinth 4′ 6″ in height. Fergusson considers it "if not the most beautiful, certainly the most highly ornamented of all Shāhjahān's buildings." The central chamber measures 48′ 0″ by 27′ 0″. The ceiling is flat and supported by engrailed arches. 'Pietra dura' work is freely used on the lower portions of the arch piers, the upper portions being treated with gilding and painting. A marble water channel, the same Nahr-i-Bahisht, 12′ 0″ in width, runs through the centre of the hall. The marble dais is said to have supported the famous peacock throne of Shāhjahān, valued at some 6 million sterling, which was removed by Nādir Shāh in 1739. Over the arches at the north and south ends of the central chamber will be noticed the famous inscription: "If there is a paradise on the face of the earth it is this, it is this, it is this."

This building is perhaps bound up more closely than any other with the history of the Mughal Empire. The favourite resort of

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the Emperor who built it, it witnessed in turn the heyday and the decline of the house of Timur.

" Here, in 1716, the Scottish Surgeon, Gabriel Hamilton, who cured the Emperor Farokhsīr, on the eve of his marriage, was rewarded by the permission for his employers to establish a factory, and to maintain a territory of 38 towns on the banks of the Hūghli, which was the foundation of the ' Presidency of Fort William,' and all that has since sprung therefrom."[1]

In it Nādir Shāh received the submission of Muḥammad Shāh (Mughal Emperor 1719—1748) in 1739, and deprived him of the most valuable treasures of his ancestors. The predatory hordes of Jāṭs, Maraṭhas and Rohillas, which harassed in turn the last Emperors of the line, despoiled it of its remaining treasures, while it is said to have been the place wherein the aged Shāh Ālam was blinded by the brigand Ghulām Qādir. In it Lord Lake was thanked for delivering the tottering empire from the house of Scindhia, while in May 1857 the mutineers chose it as the edifice wherein to proclaim Bahādur Shāh II once more Emperor of Hindustān, all unwitting that some seven months later he was to be tried in the same hall for his life.

In earlier times it was known as the Shāh Maḥal or Daulat Khāna-i-Khāṣṣ and even, by a misnomer, as the *Ghusl Khāna*.[2] 'Abdūl Ḥamīd Lāhorī, Shāhjahān's court chronicler, tells us the purpose of such a hall, and the names by which it was known :—

> " The Daulat Khāna-i-Khāṣṣ, by the wonderful art of expert artists and astonishing craftsmen, has been built between the *zanāna* apartment and the Dīwān-i-'Āmm, and the Lord, Possessor of the world, after leaving the Dīwān-i-'Āmm, honours that delightful house, and reposes on the royal throne. Here certain important affairs of state, which are not known except to

[1] Keene. *Handbook to Delhi*, p. 134. The author adds, " Dr. Busteed, in ' Echoes of Old Calcutta,' discredits this and endeavours to show that the story has very little, if any, foundation in fact "; though it should be mentioned that this incident of the granting of a " Royall Phirmaund " has been accepted as authentic by Beckles Willson in *Ledger and Sword* (Vol. II, pp. 59-61).

[2] Manucci refers to the Dīwān-i-Khāss as the *Ghusl Khāna* in the following passage. " Four horses, ready saddled for emergency, are kept near the door of the Ghusl Khāna, the place where audience is given and justice dispensed." Elsewhere, " This prince (Shāh Ālam) held me in such affection that he granted me permission to enter the *Ghusl Khāna*, which is a secret place where the second audience is given and the council sits. Into it only the principal Lords and officers of the court enter." Referring to the Royal establishment, Manucci says that "there is an officer styled Darogha Do Cossa Choqui (Darogha of the *Khās* chauki), that is, officer of the chosen sentinels ; the reason is that the company to which this name is given are all picked men and of the noblest families. Ordinarily they number 4,000 horsemen. This officer has charge of the Ghusal Cana (Ghusal Khānah)."

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confidants and court favourites, are settled by the problem-solving attention of the Emperor's heaven-like court, and angel-like power."

"As this prosperous house adjoins the Ḥammām, it is therefore known by the name of Ghusl-Khāna (a name which was given to such buildings in the time of His Majesty Akbar). In the (present) auspicious reign it is called Daulat Khāna-i-Khāṣṣ."[1]

Bernier states that "few are suffered to enter" the Dīwān-i-Khāṣṣ; the *Umarās* were received therein by the King every evening, as in the morning at the Dīwān-i-'Āmm, and "were they remiss" in attendance something was retrenched from their pay.

The decoration of its ceiling is highly praised by native historians as well as by European travellers. Muḥammad Ṣāliḥ says that 9 *lacs* were spent on it.[2]

Sayyīd Ahmad has the following account of this chamber:—

"To the north of the Khwābgāh, a big square (*Ghauk*), is to be seen, and to the east of this, is a platform 1½ *gaz* high. In its centre is built the Dīwān-i-Khāṣṣ Palace.

Through its centre there flows the channel, called Nahr-i-Bahisht, which is 4 *gaz* wide. In the middle of this edifice, another room 18 *gaz* in length and 10 *gaz* in breadth, is made by erecting square columns with a platform in the centre. Cornelians, corals, and other precious stones are inlaid in the dado, in which flowers and foliage have also been carved.

From dado to ceiling it is ornamented with golden work. Its windows on the river side are closed by finely carved screens, the perforations of which are filled with glass. To the west of this there is a courtyard, 70 *gaz* by 60 *gaz*, round which rooms and arches of red sand-stone have been built, and to the west of this is an entrance which was connected with the Dīwān-i-'Āmm by a passage. In front of the entrance a red curtain is fixed up. At the time when the *darbār* is held, all the *Umarās* perform the ceremony of obeisance from this place. There is another gateway to the north of this courtyard leading to the Ḥayāt Bakhsh Garden, and to the south is a gateway leading to the entrance

[1] *Bādshāh Nāmah*, Vol. II, p. 220; *ibid*, Vol. I, Part II, p. 237. Also see '*Amal-i-ālih*, fols. 579-80.

[2] *Op. cit.*, fol. 580.

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of the Royal Harem. In front of the central arch of this building, towards the courtyard, a marble balustrade is erected. It is known by the name of *Chaukhandī-i-Dīwān-i-Khāṣṣ*. Its ceiling was of pure silver, but in the raids of the Marāṭhas and Jāṭs it was torn off."[1]

Aḥmad Shāh's contemporary historian says that, " it was from off the Dīwān-i-Khāṣṣ that Badu,[2] on account of his mean nature and the narrowness of his mind, took the silver of its ceiling, and turned it into money."[3] Keene (*Handbook to Delhi*, p. 131) states that the original ceiling was silver inlaid with gold at a cost of 39 *lacs* of rupees, which when looted and melted down by the Marāṭhas in 1760 realized 28 *lacs*. He adds in a footnote that this act of spoliation was perpetrated by them under Sasādīva Rāo Bhāo, and in 1761, Aḥmad Shāh Durrānī inflicted on them a crushing defeat at Pānīpat. The hall had previously been despoiled in 1757 by Aḥmad Shāh, who among other plunder, took back with him a Mughal Princess as consort.

PEACOCK THRONE.

The following excellent description of the famous PEACOCK THRONE (*Takht-i-Ṭāūs*)[4] is given in the Bādshāh Nāmah.

" Since from time immemorial and year in year out, various jewels of great price, each of them worthy to be an ear-ring of Venus and to be set in a belt for the sun, had been kept in the Imperial Treasury, it occurred to the inspired mind (of the Emperor), in the early years of the beneficent reign, that the collection of such rare presents and accumulation of so many precious things, were only meant for the adornment of the Empire, and to increase its ornamentation. Therefore, they ought to be made use of in such a place that spectators might enjoy the world-enlightening beauty of the produce of the ocean and the mine, and that they

[1] *Aṯhāru-ṣ-Ṣanādīd*. Cawnpore, 1904, Chapter II, pp. 41-42.

[2] Badu. One of the Peshwās of the Marāṭhas.

[3] *Khazānah-i-'Amirah*. p. 104.

[4] Some writers place the peacock throne in the Dīwān-i-'Āmm. Carr Stephen, however, is of the opinion that the throne stood on the marble *takht* at present in the Dīwān-i-Khāṣṣ. Bernier (Travels, p. 269) describes the throne, and in his description says " at the foot of the throne were assembled all the Omrahs in splendid apparel, upon a platform surrounded by a silver railing." Later he adds (Travels, p. 270), with reference to the court outside the building in which the throne stood, " as to the arcade galleries round the court, every Omrah had received orders to decorate one of them at his own expense, and there appeared a spirit of emulation who should best acquit himself to the Monarch's satisfaction. Consequently all the arcades and galleries were covered from top to bottom with brocade, and the pavements with rich carpets." The courtyard of the Dīwān-i-'Āmm would seem to be here referred to. Tavernier says the Great Mogul had seven magnificent thrones and that the principal throne stood in the hall of the first court; *i.e.*, the Dīwān-i-'Āmm.

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should lend an added lustre to the Palace. Orders were issued that all kinds of rubies, diamonds, pearls and emeralds, the value of which was estimated at two hundred *lacs* of rupees, and in addition, those in the charge of the provincial treasury officers, should be brought for His Majesty's inspection, excepting only the Emperor's personal jewels, kept in the jewel office of the heaven-like palace.

Great and valuable jewels, the weight of which was fifty thousand *miṯhqāl*,[1] and the value of which was eighty-six *lacs* of rupees, were selected and entrusted to Bebadal Khān,[2] the superintendent of the goldsmiths' office, in order that the jewels might be studded in a slab made of one *lac* of *tolas* of pure gold, which is equal to two hundred and fifty thousand *miṯhqāls*, and the value of which was fourteen *lacs of* rupees. This slab was $3\frac{1}{4}$ by $2\frac{1}{2}$ imperial *gaz* with a height of 5 *gaz*.

It was desired that the inside of the ceiling of the throne should be principally enamelled, and the rest set with jewels, and that the outside should be adorned with rubies and other precious stones. It was to be supported by twelve emerald coloured columns. Above the ceiling two images of peacocks, set in bright gems, were to be made, and between them a tree of rubies, diamonds, emeralds, and pearls was to be fixed. To ascend the throne three steps studded with beautiful gems, were to be prepared.

In the course of seven years this heaven-like throne was completed at the cost of a hundred *lacs* of rupees, which is equal to three hundred and thirty-three thousand *tūmāns*[3] of 'Irāq, and to four crore *ḵẖānī*, current in Transoxania (*Māvarāun-Nahar*).

Of the eleven slabs covered with jewels and erected around the throne for leaning against, the central one, on which the Emperor, a Solomon in rank, leans, by placing on it his truth-seeking hand, was valued at ten *lacs* of rupees. And of the jewels set in the throne, there

[1] The *miṯhqāl* is a weight equal to $1\frac{3}{7}$ drams.

[2] This mention of the officer to whom the work was entrusted shows that the statement of Mr. Beresford in his 'Guide to Delhi' that the Throne "was planned and executed under the supervision of Austin de Bordeaux" (see Carr Stephen, *Archæology of Delhi*, p. 231) is not substantiated by native historians. For Bebadal Khān *vide Maāṯhiru-l-Umarā*, vol. I, pp. 405-408.

[3] *Tūmān*, a myriad; a sum of money equal to 10,000 arabic silver *dirhams* (which are about one-third less in value than those of the Greeks) and equivalent to fifteen dollars and a half.

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was a ruby in the centre, valued at one *lac* of rupees, which Shāh Abbās,[1] King of Persia, had sent to his late Majesty[2] as a present by the hand of Zanbīl Beg. His late Majesty had sent it by 'Allāmī Afzal Khān to the world-conquering Emperor, His Majesty, the second Lord of the happy conjunction, as a reward for subduing the Deccan. At first, the sublime name of His Majesty, the Lord of happy conjunction,[3] the pole of the Faith and of Religion, and that of Mīrzā Shāh Rukh, and Mīrzā Ulagh Beg, were written over it. After some time it fell into Shāh 'Abbās' hand, who also put his name on it, and when it was received by His late Majesty, he added his own name with that of his illustrious father. Now it has received fresh light and brightness, and inestimable adornment from the exalted name of the King of the seven climes, and the Emperor of throne and crown."

The following verse, composed by *Ḥājī* Muḥammad Khān *Qudsī*,[4] the last line of which gives the date, was written by the order of the Emperor, in green enamelled work inside the throne :—

1. " How auspicious is the Imperial throne
   Which has been made ready by Divine help.
2. On the day when heaven desired to construct it,
   It first melted the gold of the sun.
3. By the order of the Emperor, the azure of the heaven,
   Was exhausted on its decoration.
4. What is the use of gold or of jewels but to decorate this throne ?
   It was the secret of the produce of ocean and mine.
5. On account of its ruby which is beyond value,
   The heart of the red-lipped beloved is uneasy.
6. Crowns, set with jewels, and rings, holding jewels in their eyes[5]
   Waited for long (in the hope that they) might be set in its supports.

[1] Shāh 'Abbās II of Persia. (A.D. 1585—1628). He was a contemporary of the Emperor Jahāngir.

[2] The words *Jannat Makānī* are found in the text. It was a term used for Jahāngīr after his death and literally means, " nestling in paradise."

[3] He refers to Tīmur who is called " *Ṣāḥib Qirān.*" Here the word *thānī* is printed by mistake.

[4] *Qudsī* is his poetical name. He was *Maliku-shu'arā* in Shāhjahān's time, and died in A. H. 1055 (A.D. 1645). See *Biographical Dictionary*, T. W. Beale, London, 1894.

[5] *i.e.*, the sockets for the jewels.

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7. The world had become so short of gold on account of its use in the throne,
That the purse of the earth was empty of treasure.
8. Should the sky succeed in reaching the foot of the throne,
It will offer to it the sun and moon as a gift.
9. The august personage who rubbed his head on its base,
Had to add heaven as a step to (approach) the throne.
10. The tribute of ocean and mine is its robe:
The shadow of it is (like) the shelter of the Divine throne and seat.
11. It is decorated with various jewels:
Its every particle is a lamp to the world.
12. In its sides there are flowers of azure-like colour,
Shedding light like the lamp from Mount Sinai.
13. As his (Solomon's) hand could not reach it,
He set the precious stone of his ring on its steps.
14. A dark night by the lustre of its rubies and pearls
Can lend stars to a hundred skies.
15. As it kisses the foot of Shāhjahān,
So its rank is above the heavens.
16. The bestower of the world, and the prosperous king,
Spends the tribute of the whole earth on one throne.
17. Almighty Allah who exalted the heavenly Throne and Seat,
Can make such a throne, through His Divine Power.
18. As long as a trace remains of existence and space,
Shāhjahān shall continue to sit on the throne.
19. May such a throne be his seat every day,
Which has the tribute of seven climes under one of its steps.
20. When the tongue asked the heart for its date,
It replied, "This is the throne of the Just Emperor."[1]

The chronogram "*Aurang-i-Shāhinshāh-i-'Ādil*" gives the date A. H. 1044 (A.D. 1634).

[1] *Bādshah Nāmah*, vol. I, Part II, pp. 78-81. Also see *Maāthiru-l-Umarā*, vol. I, pp. 405-408.

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It is well known that the Peacock Throne was taken to Persia[1] by Nādir Shāh in A. H. 1152 (A. D. 1739).[2] Tavernier priced it at 160,500,000 francs or £6,420,000 sterling. The white marble dais, on which it is said to have rested, was removed from the central room during the visit of the Prince of Wales in 1876 and placed in the east aisle of the hall where it now stands. (*Archæology of Delhi*, Keene, p. 134.)

[1] *Tārīkh Jahān Kushāi Nādirī*; also *Maāthiru-l-Umarā*, vol. I, p. 408.

[2] The following extract from *Persia and the Persian question* (vol. I, pp. 321-2) by the Hon. G. N. Curzon, M.P., will dispel at once the idea that the Peacock Throne of the 'Great Mogul' is still extant:—

> "In this dilemma, but with the growing conviction that the modern Takht-i-Taous had a very shadowy connection, if any at all, with the plundered treasures of Delhi, I turned to contemporaneous records. I found in Malcolm, (*History of Persia*, vol. ii, p. 37), that Nadir Shah was so fond of the real Peacock Throne of the Great Mogul that he had an exact duplicate of it made in other jewels. This left two Peacock Thrones to be demolished between his death and the end of the last century, a catastrophe which in the anarchy and violence of those times would have been in itself no unlikely occurrence; but it left the Takht-i-Taous unexplained, as under no circumstances could the latter be described as duplicate of Tavernier's original. Now, however, I came across a passage in Fraser's 'Khorasan' in which he mentions that an old Kurd told him in 1822, that 'when Nadir Shah was murdered and his camp plundered, the Peacock Throne and the Tent of Pearls fell into our hands, and were torn in pieces and divided on the spot.' Any Kurd might certainly have been trusted to handle such an object as the Peacock Throne in the unceremonious manner here described, and, assuming the veracity of this particular Kurd, I witnessed with some delight the disappearance of the real Peacock Throne, or one of the two, from the scene.
>
> A phrase in Morier's account had now set me thinking that the Takht-i-Taous at Tehran must be a modern structure after all. In the same passage which I have quoted in a footnote, he adds: 'It (*i.e.*, the throne) is said to have cost 100,000 *tomans*' (equivalent at the beginning of the century to about 100,000£)*; herein clearly implying that an account or a tradition of its cost prevailed at Tehran, which was far more likely to be the case with a new than with an old fabric, and which was extremely unlikely to have been the case with an object carried off in plunder from a remote country seventy years before. At this stage, accordingly, I referred my doubts for solution to Tehran itself, and after an interval of some weeks was interested and (I may confess) rejoiced to hear, on the authority of the Grand Vizier and the former Minister for Foreign Affairs,† that, as I suspected, the Takht-i-Taous is not an Indian throne at all. It was constructed by Mohammed Husein Khan, Sadr or (High Priest) of Isfahan, for Fath Ali Shah when the latter married an Isfahan young lady, whose popular sobriquet, for some unexplained reason, was Taous Khanum, or the Peacock lady. The King is further said to have been so much delighted with the throne, that it was made a remarkably prominent feature in the ceremonies that commonly ensue upon marriage. Here, therefore, at one fell swoop, topple down the whole of the brilliant hypothesis, which has sustained scores of writers, and provided material for pages of glowing rhetoric. From the same authorities I learned that the original Peacock Throne of Nadir Shah (*i.e.*, the survivor

* I understand, however, that it is now valued at nearly 200,000£.

† When I was in Tehran I had in vain asked the same questions of the custodian of the treasury, and of every Persian official whom I met, but without eliciting any satisfactory response.

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The entrance to the ḤAMMĀM, or baths, faces the north wall of the Dīwān-i-Khāṣṣ, the two rooms on either side being said by tradition to have been used as baths for the royal children. The baths consist of three main apartments divided by corridors, the pavements, reservoirs, vapour slabs and walls, waist high, being of marble inlaid with vari-coloured stones. The apartment facing the river was known as the Jāmakan, the apartment wherein garments were removed, and contains two fountain basins, one for the use of the "rose-water spray" being of special interest. The marble lattice work of the window still exists, as do some of the old panes of coloured glass, too vivid in tone to be artistic. In the next apartment there is a central basin only. This could be used for hot or cold baths as desired. A marble couch of pleasing design still remains to show the character of the fittings such chambers contained. The westernmost compartment, used for the hot baths only, possesses a vapour slab of singular beauty, the heating arrangements being in the west wall. Light was admitted to these two apartments by windows of stained glass as in the case of the east compartment. According to Shāh Nawāz Khān, the warm bath was inlaid with precious stones, and the square cold water reservoir adjoining had a jet of gold at each of its four corners.[1] The baths were a favourite resort of the Mughal Emperors and in them business of a most important character was often transacted. Sir Thomas Roe visited Jahāngīr in the Ḥammām in the palace at Agra. In the cold season they were also used, being warmed by means of stoves. Sayyīd Aḥmad states that the Ḥammām in the Palace at Delhi were never used after the reigns of Shāhjahān and Aurangzeb. He adds that 125 *maunds* of firewood were required to heat them. ḤAMMĀM.

The body of the MOTĪ MASJID or Pearl Mosque measures some 40′ 0″ × 30′ 0″ and from floor to roof, 25′ 0″. Engrailed arches standing on a plinth $3\frac{1}{2}$ feet high, support the roof of the building. The marble domes have replaced the original ones, covered with gilded copper. This material shared the same fate MOTĪ MASJID.

of the two facsimiles) was discovered in a broken down and piecemeal condition by Agha Mohammed Shah, who extracted it along with many other of the conqueror's jewels by brutal torture from his blind grandson Shah Rukh at Meshed, and then had the recovered portions of it made up into the throne of modern shape and style, which now stands at the end of the new Museum in the palace at Tehran, and to which I have alluded in my description of that apartment. In this chair, therefore, are to be found the sole surviving remnants of the Great Mogul's Peacock Throne, and the wedding present of Fath Ali Shah must descend from the position which it has usurped in the narrative of every writer in this century, without exception, who has alluded to it."

[1] *Archæology of Delhi.* Keene, p. 130.

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after the Mutiny (during which the mosque was damaged by a gun-shot) as that which covered the dome of the Muthamman Burj, and the *chattris* of the Dīwān-i-Khāṣṣ. The present marble domes, which were added after the Mutiny, are unfortunately out of proportion to the building. The original copper domes appear to have been considerably smaller. Carr Stephen gives 1070 A. H. (1659 A.D.) as the date of this building, while the contemporary historian of Aurangzeb gives 1073 A. H. as the date of the completion of the main structure, the decoration being finished a year later. Shāhjahān seems to have built no place of worship in the Fort and was wont to repair to the Jāmi' Masjid. The devout Aurangzeb, however, "always," as the historian says, "inclined to attend devotions,.....wished that, near the private bed-chamber, a small mosque should be built, and a graceful place of worship erected, so that at various times of the day and night, after a short walk from the blessed bed-chamber to the sacred place of worship, he might partake of the service of holy God and the worship of the Lord of Lords at his ease, and without the trouble of a retinue or long journey. Therefore to the north of the blessed Ghusl-Khānah, between the buildings of this beautiful and glorious palace, and its paradise-like garden (known by the name of Ḥayāt Bakhsh), a piece of land was selected for this noble edifice, and with the Divine assistance an auspicious mosque of white marble was built." The foundations were laid by the Emperor's orders on the 3rd day of Rabī'u-th-thānī, while he "was shooting and hunting on the bank of the river Ganges." "The date of the completion of this holy building—the abode of angels—was discovered by 'Āqil Khān, the ablest servant of the Court, in the following verse of the Qurān:—

> "Verily the places of worship are set apart unto God; wherefore invoke not any other therein, together with God."[1]

The above mentioned chronogram was, the historian adds, approved by the Emperor, and "according to the supreme order it was carved in a stone slab in that holy place." The inscription is unfortunately no longer traceable.

There is a Motī Masjid (Pearl Mosque) in the Fort at Agra and another in the Fort at Lahore.

HĪRĀ MAḤAL.

The HĪRĀ MAḤAL, the small marble pavilion immediately to the north of the baths, measures 22′ 5″ north and south by 19′ 5″ east and west, and has three open arches on each face. It was built by Bahādur Shāh II. The work shows the contrast in the

[1] *Sale's Translation of the Koran*, p. 468. London, 1857.

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quality of late Mughal architecture, as compared with that of the period of Shāhjahān.

SHĀH BURJ (KING'S TOWER).

The marble pavilion which lies on the south front of the SHĀH BURJ is of singular beauty, although already showing signs of the decadence in architecture which culminated in the reign of Aurungzeb. It measures some 63′ 3″ east and west by 32′ 0″ north and south. The centre of the north wall is occupied by a marble water cascade of pleasing design, which slopes into a 'scolloped' marble basin. For many years after the Mutiny the building served as an officer's residence, but in 1902 its conservation was taken up, the marble cascade being reconstructed and modern additions removed. The earthquake of 1904 so damaged the structure that it was necessary to take it almost entirely down and rebuild it. The *burj* behind the marble pavilion is an octagonal structure two storeys in height and formerly crowned by a domed cupola of similar design to that on the Asad Burj, which stands at the south-east corner of the Fort. In Lieutenant Franklin's account of Delhi (*Asiatic Researches*) he says that in the "Shah Baug, or royal gardens, is a very large octagon room which looks towards the river Jumna. This room is called the Shah Boorj, or royal tower; it is lined with marble; and from the window of it the late Heir-apparent, Mirza Juwan Bukht (Jawān Bakht) made his escape in the year 1784, when he fled to Lucknow; and as the height is inconsiderable, effected it with ease." "A great part of this noble palace," adds the writer, "has suffered much by the destructive ravages of the late invaders. The Rohillas in particular, who were introduced by Gholaum Kauder (Ghulām Qādir) have stripped many of the rooms of their marble ornaments, and pavements, and have even picked out the stones from the borders of many of the floorings."[1] They also passed three days digging up the floors for treasure which they supposed had been hidden by the Emperor Shāh 'Ālam in the Palace. The grass terrace between this pavilion and the Ḥammām was laid out as it now exists in 1911, and the Gun Battery, formerly in its centre, has now been removed (1914). The Nahr-i-Bahisht, the famous canal which supplied the many fountains and water channels of the Palace, also served this building and thence proceeded along the entire length of the east wall.

Keene (*Fall of the Moghal Empire*, p. 140) seems to infer that it was from the Salīmgarh that Jawān Bakht[2] escaped, after secretly

[1] *Asiatic Researches*, vol. IV, London, 1799.

[2] Jawān Bakht was anxious to inform the British Governor, newly arrived at Lucknow, of the disorderly state of affairs at Delhi, consequent on the appointment of Afrāsyāb Khān, who had been created *Amīr-ul-Umarā*, or premier noble of the realm, by Shāh 'Ālam, mainly through the instigation of the sister of the deceased premier, Mirzā Najaf Khān.

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departing from his chamber in the Palace and passing from the roof of one building to the roof of another until he reached the acqueduct (Nahr-i-Faiz, a canal of old foundation restored to use by Shāhjahān on his building the Fort) which crossed the garden Ḥayāt Bakhsh. " The night was stormy, and the prince suffering from fever, but he found a breach where the canal issued, by which he got to the rampart of the Salīmgaṛh. Here he descended by means of a rope and joined his friends on the river sands."

Bishop Heber, visiting Delhi in 1824-25, remarks on " a beautiful octagonal pavilion at the end of the terrace, also of marble, lined with the same mosaic flowers as in the room which I first saw, with a marble fountain in its centre, and a beautiful bath in a recess at one of its sides. The windows of this pavilion, which is raised to the height of the city wall, command a good view of Delhi and its neighbourhood.[1] But all was, when we saw it, dirty, lonely, and wretched ; the bath and fountain dry ; the inlaid pavement hidden with lumber and gardener's sweepings, and the walls stained with the dung of birds and bats."[2]

ASAD BURJ.

The ASAD BURJ, which is of similar design to the Shāh Burj but without a fronting marble pavilion, was much damaged in 1803 when the city was defended by Colonel Ochterlony against Harnāth Chela. It was considerably repaired by Akbar II.

ḤAYĀT BAKHSH (LIFE BESTOWING) GARDEN.

Only one half of the original area of this garden exists at present, its western portion being occupied by the military barracks. The garden was bounded on the north and south by a range of buildings with the ' Sāwan ' and ' Bhādon ' pavilions as the central features, while terminating the ends of the main causeways, running east and west from the central tank, were other marble pavilions, that on the east terrace being known as the Motī Maḥal.[3] West again of the Ḥayāt Bakhsh gardens lay the Mahtāb Bāgh (garden of moonlight), and this extended up to the line of the arcaded street running northwards from the square in front of the Naubat Khāna (see page 8). The site of this last-named garden is now the barrack square and, although all its pavilions have gone, it is more than probable that a clearance of the surface earth will reveal traces of the old parterres and water causeways. The Indian historian's account of the Ḥayāt Bakhsh garden will be of interest.

[1] The *Chhatrī* on the roof was apparently taken to Meerut some 28 years ago and re-erected over a well there.

[2] *Heber's Journal*, vol. II, London, 1828.

[3] This pavilion has disappeared, only a few traces of its foundations coming to light on the removal of the Gun Battery which stood till recently at this spot. It is shown in old drawings of the east wall of the Fort.

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"This Iram-like[1] Ḥayāt Bakhsh garden, which, by the display of its beautiful flower-beds, of the various green plants, and blessed flowers, and by the running water channels facing the garden, in the name of Holy God, *is* a garden. The wave of its fresh grass has surpassed the roses, and the fruitful trees of divers kinds are interlaced with each other in such a way that the sky is not anywhere visible beneath them. Especially does the tank in its centre, which is 60 *gaz* by 60 *gaz*, shine as a sun-like mirror with its waving light, and it is decorated with forty-nine silver jets, besides 112 more jets which play round it. In all its four avenues, each of which is made of red sandstone, and completed with a breadth of 20 *gaz*, there is a channel 6 *gaz* broad, which flows with 30 playing fountains in its centre. At the left and right (sides) of this garden two charming buildings (*Sāwan*[2] and *Bhādon*[3]) decorated with pictures and paintings like the enamelled throne of the Queen of Shaiba, or like Solomon's throne studded with emeralds, have been built. Through the two water-ways of the tanks which are made in the centre of these buildings, the water is constantly bursting forth gracefully, and from the edge of their platforms, which have the height of $1\frac{1}{2}$ *gaz* (from the ground), it falls into the tank below in the form of a cascade. In the niches, flower-vases of gold and silver, full of golden flowers, are placed during the day time, and at night, white wax candles which appear like the stars in the thin clouds, are lighted and placed inside the veil of water."[4]

The *Sāwan* and *Bhādon* Pavilions.

Bishop Heber says "the gardens are not large, but, in their way, must have been extremely beautiful. They are full of very old orange and other fruit trees, with terraces and parterres, on which many rose bushes were growing, and even now (January), a few jonquils in flower."

The Ẓafar Maḥal—the red sandstone pavilion in the centre of the main tank, was built by Bahādur Shāh II, the last Mughal Emperor, Ẓafar being his poetical name.

Ẓafar Maḥal.

Sayyid Aḥmad in his account of this building says that, "on one side a bridge for ingress and egress has been built,"[5] This has disappeared, and the pavilion has now little to commend it to notice.

[1] Iram is the name of a fabulous garden, famous in eastern poetry. It is said to have been planned by Shaddād, son of 'Ād, in emulation of the gardens of Paradise.

[2] *Sāwan*, a Hindī month corresponding to July and August, the first month of the rainy season.

[3] *Bhādon*, a Hindī month corresponding to August and September, the second month of the rainy season.

[4] *'Amal-i-Ṣāliḥ*, Fols. 580-82. Sayyid Aḥmad gives the same description, and it is very likely that the above work is his real source. (*Āthāru-ṣ-Ṣanādīd*, Chapter II, pp. 45-48, Cawnpore, 1904.)

[5] *Āthāru-ṣ-Ṣanādīd*, Chapter II, p. 20, Lucknow, 1878.

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The same historian also writes: "In the middle of this garden (the Ḥayāt Bakhsh) a large canal flows very pleasantly. His Exalted Majesty Sirāju-d-dīn Muḥammad Bahādur Shāh has now made a *jharna*[1] of red stone near the canal towards the west, like that of the Quṭb Ṣāḥib,[2] and the garden has been much improved by this. In this garden there is a holy footprint (Qadam Sharīf)."[3]

Chobī Masjid.

To the south[4] of the Ḥayāt Bakhsh garden stood a small mosque —a later addition—commonly known as the "Chobī Masjid" or Wooden Mosque. It existed up to time of the Mutiny of 1857, as we find it mentioned in Sayyīd Aḥmad's work, but no trace of it is now left. It is described in the following words:—

"This mosque was built by King Aḥmad Shāh in A. H. 1164 (A. D. 1750), and being supported by columns and arches of wood, was known by the name "Chobī Masjid."

"It was entirely ruined, but was re-built in A. H. 1267 (A. D. 1850) at Government expense."[5]

On the entrance of the mosque was the following inscription[6]:—

"This mosque was built by the King, Protector of the faith,
Who received help from Divine power.
Whoever performs the prostrations of supplication there
He is sure to be guided by the light of worship.
The foot of wisdom slipped in astonishment
When he began to deliberate upon the date.
The angel, through very pride was thus inspired:
'The mosque of Aḥmad has attained the rank of the Zodiac sign.
Year 1164.'"

THE NAHR-I-BAHISHT (CANAL OF PARADISE).

The history of the CANAL, by which Shāhjahān brought water to the Fort from a point thirty *kos*[7] higher up the river[8] is of no

[1] *Jharna*, a kind of shower bath, or water-fall.

[2] The author is perhaps referring to the chute in the Jharna Garden at Mehraulī, to which the Emperor added some buildings.

[3] *Op. cit.* Lucknow, 1874, Chapter II, p. 21. It should be remembered that "Qadam Sharīf," literally a sacred foot, here means the footprint of the Prophet. Most probably it is the same which was kept in the Delhi Municipal Museum and was recently removed to the Delhi Museum of Archæology, see Nos. C. 28 and 29. *Museum Catalogue.*

[4] See the old map of the Fort in the Delhi Museum of Archæology No. K. 2.

[5] *Op. cit.* Cawnpore, 1904, Chapter III, p. 92.

[6] This inscription is taken from *Miftāhu-ī-Tawārīkh*, T. W. Beale, p. 332, where it is compared with that recorded in *Āthāru-ṣ-Ṣanādīd*, Lucknow, 1874. Chapter II, p. 21.

[7] A *Kos* is roughly equal to 2½ miles.

[8] *Maāthiru-l-Umarā*, vol. III, p. 466. See also *Āthāru-ṣ-Ṣanādīd*, Cawnpore ed., Chap. II, p. 54.

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little interest, and is thus traced by the authors of *Maāthiru-l-Umarā* and *'Amal-i-Sāliḥ*. To the canal he gave the name Nahr-i-Bahisht.[1] It is said that it was originally the work of Fīroz Shāh Khiljī in A. H. 691 (1291 A. D.) and that he brought the canal from the Jamna near Khizrābād to Safaidūn,[2] his hunting ground, a distance of 30 *kos* from its starting point. After his death it became dry but was cleared by Shihābu-d-dīn Aḥmad Khān, Governor of Delhi in the time of Akbar. He rechristened the canal Nahr-i-Shihāb after himself, and used it for bringing water to his estate in A. H. 969 (1561 A. D.). It again became neglected, but in A. H. 1048 (1638 A. D.) Shāhjahān ordered it to be cleared as far as Safaidūn and brought thence to the Fort at Delhi.[3] Sayyīd Aḥmad in his description states that "it had become dry again, but that in A. H. 1236 (1820 A. D.), it was repaired and cleared by order of Government, and from that time it continues to run for the common benefit."[4]

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[1] *'Amal-i-ṣāliḥ*. Fol. 579.

[2] Safaidūn is shown on the map about 65 miles north-west by north of Delhi, in Jind State.

[3] *Maāthiru-l-Umarā*, vol. III, p. 465-6.

[4] The chronology of this canal, now known as the Western Jamna Canal, with its dependent branches serving Ambala, Karnal, Hissar, Rohtak, Delhi and parts of the Native States of Patiala, Jind and Bikanir is given as follows in the *History and description of Government Canals in the Punjab* by Mr. J. J. Hatten (Lahore, Punjab Government Press, pp. 1-3):—

A. D. 1351.—The Emperor Firoz Shah utilised the Chautang Naddi to conduct water to Hansi and Hissar.

About A. D. 1468.—Water ceased to flow beyond the lands of Kaithal, near Karnal.

A. D. 1568.—The Emperor Akbar re-excavated the work of Firoz and brought a supply from the Jumna and the Somb into the Chautang on to Hansi and Hissar. A valuable *sanad* by Akbar on this work exists.

About A. D. 1626.—Ali Mardan, the famous engineer of the Emperor Shāhjahān, drew a canal to Delhi, first by way of Gohana, along a natural depression now occupied by a main drain, and when this failed, by way of Panipat and Sonipat. The cost of this work is reported to have been very great, and considerable engineering skill was shown.

A. D. 1707.—Water ceased to reach Hariana (Hansi-Hissar).

1740.—Flow ceased at Safaidon on Firoz Shah's line.

1755-1760.—Delhi branch ceased to flow, owing to political disturbances and the difficulties experienced in efficient maintenance, especially at the head.

1810.—First surveys made by British Government for a restoration of the Delhi branch.

1817.—Captain Blair appointed to restore the Delhi branch.

1819.—Delhi branch reopened.

1820.—Water once more entered Delhi.

1823.—Restoration of the Hansi Branch (Firoz's) began.

1825.—Hansi branch reopened, etc., etc.

Of the earlier schemes little need be said. Firoz Shah's canal by which the Hansi branch, below Datrat, was known, was little more than a monsoon supply channel, which was led down a drainage bed to the tanks at Hansi and Hissar, the royal residences.

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SALĪMGARH OR NŪRGARH.

SALĪMGARH was built by Salīm Shāh, son and successor of Sher Shāh, as a defence against the approach of Humāyūn (1546 A. D.), the whole circuit of the walls being about three quarters of a mile. Originally protected by nineteen bastions and said to have cost 4 *lacs*, it was still unfinished at Salīm Shāh's death in 1552, and was, thereafter, consigned to neglect. Carr Stephen (*Archæology of Delhi*, p. 195) states that " eighty years later (*i.e.*, after the death of Salīm Shāh) Farīd Khān, otherwise known as Murtazā Khān, an Amīr who flourished in the reigns of Akbar and Jahāngīr, seems to have obtained Salīmgarh, with other possessions along the banks of the Jamna, in grant from Akbar, and he built houses in this fort." In 1828 these buildings were in a complete state of ruin, but a two-storeyed pavilion and a well stocked garden were still preserved with care by Akbar II, who occasionally used to take an airing here undisturbed by the public. It was here in August 1788 that the helpless Emperor Shāh 'Ālam was imprisoned after being blinded by the Rohilla brigand, Ghulām Qādir (Keene, p. 19), and some months afterwards the latter escaped through Salīmgarh with his followers, crossing the five arched bridge which connected it with Lāl Qilah, or the fort of Shāhjahānābād. The bridge, built by Jahāngīr to connect Salīmgarh with the main land, was demolished to make way for the present railway

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Akbar's canal was undoubtedly a perennial channel. The two ancient bridges at Karnal and Safaidon testify to this, and there is no reason to doubt the genuineness of the *sanad*, by Akbar, which is dated Shawwal A. H. 978, Firozpur, where Akbar was at the time. This *sanad* clearly states that the water was to be obtainable " all the year round." The existence of a complete system of water-courses points to the same fact. No such water-courses existed in the channel brought down by Firoz.

'Ali Mardan's canal was indeed a great engineering undertaking. The river supply coming down the right bank of the Jumna was bunded up annually at Fatehgarh near Dadupur, about 14 miles below Tājawala. The line followed was the drainage at the foot of the high land (*bangar*) of the right bank. Several cuts through the high land had to be made. Drainage and escapes were fairly provided for. The " Poolchaddar acqueduct near Delhi taking the canal over the Najafgarh *jhil* drain, and acting at the same time as a waste weir, was a great engineering feat at the time. The total length of the acqueduct is 80 feet. Thickness of canal floor 3½ feet, waterway 16 feet at bed, and 19 feet at top of parapets, which were 5 feet 9 inches high—all carried on massive 8 feet thick piers with cut-waters and arches 8 feet span over the drainage. This work was repaired by the British Government with slight modifications when the branch was opened to Delhi in 1820. The water rate appears to have been regulated by the time that the outlets remained open. It is stated that 1,000 armed peons and 500 horse were maintained on the establishment. The net revenue from the canals was reckoned equal to the maintenance of 12,000 horse." Further information on the history of the Canal of 'Alī Mardān Khān will be found in the *Memoranda on the Western Jumna Canal, North Western Provinces*, by Major W. E. Baker, Superintendent of Canals, North-Western Provinces; London 1849. In it are also given drawings of several of the old Mughal acqueducts. The Poolchaddar acqueduct is no longer used. It lies close to the modern Najafgarh *Jhīl* acqueduct, just outside Delhi, and is now maintained as an historical building.

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bridge, but an inscription from it is still preserved in the Museum. The translation is as follows :—

" By the order of the King of the seven climes, the Emperor (who rules) with equity, justice and good government,
Jahāngīr, the son of Emperor Akbar, whose sword has subdued the world.
When this bridge was built in Delhi, the praises of which cannot be expressed,
For the date of its completion wisdom spoke thus : 'The bridge of the Emperor of Delhi, (named) Jahāngīr'."

The value of the letters of this chronogram (*Puli-i-Shāhinshah-i-Delhi Jahāngīr*) is equal to A. H. 1031 (A. D. 1621).

The meaning of the words placed in the margin of the original inscription is as follows : (God is great.) (Great in His Glory.) (O ! the Most Victorious.) (O ! Helper.) (O ! Bounteous.) (O Immortal.) (In the year 17) (of the accession) (of Jahāngīr) (Under the management) (of Ḥusain Ḥalabī). (Written by Sharīf.)

Another inscription, said to have been on the east side of the bridge, is recorded by Sayyid Aḥmad, the translation being as follows :—

" God is Great."

" It was built by the order of King Nūru-d-dīn Jahāngīr, the Great. The year and auspicious date (of its erection is found in the following chronogram) : *Ān Ṣirāṭ-ul-mustaqīm.* ' That (is the) right path. A. H. 1031) '."

The Fort during the Mutiny.

The following account has been principally abstracted from Fanshawe's *Delhi Past and Present*, *The Siege of Delhi in 1857* by Lieutenant-General Handcock, *Seven Cities of Delhi* by Gordon Hearn, *Indian Mutiny Papers*, *Trial of Bahādur Shāh*, and *Two Native narratives of the Mutiny in Delhi*, translated by C. T. Metcalfe, C.S.I. Only such events as are connected with the Palace have been mentioned.

It would appear from the various accounts that Bahādur Shāh II held daily *darbārs* in the Fort during the occupation of Delhi by the mutineers, these ceremonies being attended by the principal residents of Delhi and officers of the mutinied troops. Questions regarding the payment of the troops, levying of taxes on the inhabitants for this object, and reports on the state of the fighting were discussed, while letters were written to induce others to join in the revolt. Suspected spies or traitors were also dealt

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with and *nazars* presented. The Emperor seems to have been, from the first, treated with but scant ceremony, his orders being generally disregarded, while when the question of the occupation of the city by the English became only a matter of days, the Palace became completely disorganised.[1]

On the 11th May 1857 the sepoys from the mutinied regiments at Meerut arrived at Delhi and clamoured for admittance to the Palace, declaring that they had killed the English at Meerut and had come to fight for the true faith. Captain Douglas, commandant of the palace guard, wished to go down and speak to them, but being dissuaded by the Emperor, Bahādur Shāh II, he contented himself with addressing them from the balcony of the Muthamman Burj. He was, however, defied, and the sepoys of the palace guard, furnished by the 38th Native Infantry, admitted the mutineers. Captain Douglas then proceeded with the civil authorities to the Calcutta gate of the city in order to interview the rebels, but the party was attacked by the sepoys who had effected an entrance by the water gate, and obliged to retreat to the Lahore gate of the Palace. The Native Infantry on guard refused to fire on the mutineers, and Mr. Simon Fraser, Commissioner at Delhi, remonstrated with them for their behaviour; he then turned to mount the steps leading to Captain Douglas's rooms. As he placed his foot on the first step, two men, named "Kārlik Beg" and "Mughal Beg," rushed forward and cut him down.[2] Captain Douglas, already wounded in the ankle, had been carried upstairs in a fainting condition, but, on recovering, gave orders for all doors and windows to be closed. The others in the room were Mr. Jennings, the Chaplain, and a friend, two married ladies, and two girls, Miss Jennings and Miss Clifford, who had been conveyed to the Begam's Palace for protection. The doors were then broken in and all the occupants immediately cut to pieces. The same day two *ṣubahdārs* were admitted to a private audience with the Emperor as the representatives of the crowds of rebel soldiery, and protested that they would "bring the revenue of the whole Empire to the King's treasury." The news of the death of some

[1] The mutineers, cavalry and infantry, occupied the Ḥayāt Bakhsh garden and the Mahtāb Bagh, injuring them considerably. Magazine stores were kept by them in the Dīwān-i-Khāṣṣ, while they spread their bedding in the same building. Repeated orders were given by the King to the rebel troops not to occupy the royal farrāshkhāna, and the regiment of cavalry were also told frequently to evacuate the gardens. "These," said the King, "were places which not even Nādir Shāh or Aḥmad Shāh or any of the British Governor-Generals of India ever entered on horseback." The troops also galloped up to the Hall of Audience and the *Jalwa Khāna* (*Jilaukhāna*, see p. 21), wearing caps instead of turbans.

[2] In another account Ḥājī, a lapidary, is cited as the murderer of Mr. Fraser.

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more officers then reached the Palace, followed by the arrival of a regiment of cavalry who took up their position in the court of the Dīwān-ī-Khāṣṣ. Many of the men forcibly intruded themselves into the presence of the Emperor, and the interior of the Fort became a scene of the wildest confusion. Orders were issued by Ḥakīm Aḥsān-ullah Khān to the Princes to assume command of the several regiments. Throughout the whole of the 12th May the Palace was thronged with soldiers demanding pay. Formerly a silver throne had been kept in the Hall of Special Audience on which the King used to take his seat on special occasions of State; but since the year 1842 the presentation of the usual offering by the Agent to the Governor General on occasion of salutes and interviews had been disallowed. This throne was then removed and placed in a recess in the passage behind the King's sitting room, and since that time was in disuse till the 12th May 1857, when it was brought out again, and the King took his seat on it, as on a throne. The Emperor also left the Fort and proceeded through the city on an elephant to allay the fears of the inhabitants. On his return, he found the court of the Dīwān-i-Khāṣṣ again full of soldiers, and pointed out to some of the *ṣubahdārs* that, hitherto, the enclosure had been sacred to Royalty alone, and never entered forcibly by armed men. In the evening of the same day he again had cause to complain of disrespect, being addressed by some "*Ari Bādshāh* ! *Ari Buḍḍha* !" ("I say, King; I say, you old man") ; while others caught him by the hand or touched his beard. Thirty persons had taken refuge in the underground apartments of the Rāja of Kishangaṛh, and on the 13th May a few of these escaped, but were recaptured and taken to the Palace. It is said that the King ordered that all the captives should be sent thither, but his orders were disregarded. On May 14th the Emperor was so distracted by the turmoil going on around him that he refused audience to all. He ordered a search to be made for the bodies of Mr. Fraser and Captain Douglas, that they might be interred in the Christian burial ground, while the other bodies were to be thrown into the river.

On May 16th, a large number of mutineers assembled before the Palace and threatened the Emperor, accusing him of concealing some forty Europeans. They threatened to abduct Zīnat Maḥal, the Queen, and hold her as a hostage for the Emperor's loyalty. On this day, at about 9-30 or 10 A.M., all the Europeans in the Palace, forty-nine in number, principally women and children,[1] were murdered in cold blood near a tank in the centre of the

[1] It is said that there were only five or six men among them. 100 or 150 ruffians were employed in the work of murder.

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square before the Naubat Khāna. The Palace on May 21st was crowded with a howling mob of men demanding pay.

Bahādur Shāh II left the Palace on the 25th and proceeded to the Jāmi' Masjid for prayer. The next day a discovery was made that some one had filled the guns in the Salīmgarh with *kankar* and stone. Ḥakīm Aḥsān-Ullah Khān was suspected and narrowly escaped with his life.

An unnamed European, dressed as a Hindū fortune teller, and "carrying an almanack," was brought into the Palace on the 29th and murdered.

On May 30th news was received that the mutineers had been defeated by the English at the Hindun, and numbers of wounded men appeared in the city. The Emperor held a court at night and was much perplexed at the turn affairs had taken.

News of the murder of the English at Bareilly reached the Palace on the 31st, and on the same day the King issued orders that he would no longer receive any petitions in person, but that they must be sent to Maḥbūb 'Alī Khān and Ḥakīm Aḥsān-Ullah Khān. News reached the Palace that the Lieutenant-Governor of Agra had been informed of the events at Delhi.

A levée was held on the 3rd of June attended by "all the nobles of the city." Some Mughals also presented themselves and asked permission to raise the flag of *Jihād* (Religious War).

The son of one Pīyā Mall Masūrī was seized on June 8th, and brought before the Emperor, his father being suspected of providing the English with supplies. The next day a petition was sent to the Palace for his release on the ground that Pīyā Mall had supplied the mutineers with provisions daily and in no way befriended the English.

On June 10th the Emperor issued a proclamation for the forcible opening of all the shops in the city. The mutineers lost heavily in an engagement on the same day, while some 100 English were killed. Their heads were cut off and paraded through the city. Fifty sepoys seized Rāja Ajīt Singh of Patiala and brought him as a prisoner before the Emperor. He was threatened with death unless he used his influence with his brother, who was in league with the English. The Rāja threw himself at the Emperor's feet and implored his protection, and, it being explained that there had been a difference between the brothers for some time, his immediate release was ordered.

On June 11th the Emperor ordered one hundred *maunds* of gunpowder to be prepared, being cheered by the marksmanship of one Kūlī Khān, an artillery man, who kept up a constant fire on

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the English. A confidential report was received that the Queen of England, on receipt of news of the Mutiny, had ordered the despatch of 24,000 troops. The next day one Pīyāri Lāl was taken forcibly before the Emperor and charged with supplying sulphur to the English. Bahādur Shāh expressed displeasure at the failure of the mutineers to drive off the English.

On June 14th a *mahāwat*, who had deserted with his elephant from the English camp, made his way to the Palace, and the elephant was appropriated by the Emperor for his own use. The next day seven cannon balls fell into the Palace. The Emperor threatened to leave Delhi and retire to the Qutb unless the troops left the city.

On June 17th 'seven carts with lime' were despatched for the repairs of Salīmgaṛh, while a cannon, which had been lying at the door of the Palace since the time of Shāhjahān, was mounted at the Lahore gate. "It being a long range gun, it was intended to annoy the English troops marching from Agra."

An audience was held on the 20th and attended by the officers of the Naṣīrābād regiments who had mutinied on the 22nd; three regiments also arrived from Jullundhur. Their officers attended the audience and complained that they had been attacked by Patiala troops. They boasted that they had killed the Collector of Naṣīrābād and had taken his elephant, which they brought with them. The Emperor said that they were "Great *Bahādurs*, whose like was not to be met with."

The next day the gun of the time of Shāhjahān was mounted.[1] Kūlī Khān, who has already been referred to, was brought before the Emperor on the 24th and charged with being in collusion with the English. Some of his shots had apparently gone astray and killed some of the mutineers. A large *darbār* was held on the 25th at which Bahādur Shāh received reports of the state of affairs. He addressed the *sardārs* of the sepoys and pointed out to them that they were destroying the kingdom that had lasted 500 years, adding that after an engagement with the English they always returned "topsy turvy." He expressed the wish that they should all leave the city, and the following day issued a general order to this effect.

On the 28th the leading inhabitants waited on the Emperor to pay their respects. A man caught digging a mine in the Palace, in connivance with the English, was blown from a gun at Salīm-

[1] *Two native narratives of the mutiny.*—It appears from the text as if this was a different gun from the one previously mentioned.

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gaṛh. Little of importance happened during the next two days save the arrival of some 500 ' fanatics,' who presented an elephant they had taken from the English.

On July 2nd Muḥammad Bakht Khān, a Bareilly mutineer, was appointed Commander-in-Chief, and he seems to have been given full control, not only of the army but of the civil administration.

On the 3rd he attended at the Palace accompanied by " two European sergeants who had accompanied his force from Bareilly and made themselves very useful." They had also, it was stated prevented the Europeans at Bareilly blowing away natives from guns. They were ordered to report on the various batteries. Nothing worthy of especial remark occurred within the next few days in the Palace. The daily audience was thronged by those who complained of being plundered by the mutineers. On the 6th a man at Salīmgaṛh had his head taken off by a cannon ball ; an order was issued that youths without turbans and all armed men were to be henceforth excluded from the Dīwān-i-Khāṣṣ. A levée was held in the Dīwān-i-'Āmm on the 8th. The next day several Europeans, who were found concealed in the *sarāi* of Maḥbūb 'Alī Khān, were decapitated and their heads laid before the Emperor, who gave a reward of 100 rupees to the murderers.

On the 10th Bahādur Shāh visited the battery at Salīmgaṛh. On the 13th he entered the Dīwān-i-Khāṣṣ through the " Khāṣpura " gate and " all the nobles of Delhi and officers of the army paid their respects." A regimental band was in attendance, and received two gold *mohars* for their services. Five hundred ladders were prepared by the orders of Maḥmūd Bakht Khān, so that the sepoys could escape over the wall in the event of the English entering the city. On the 18th the Emperor entered the Dīwān-i-'Āmm and received the salutations of the nobles who were present. The next day he visited Salīmgaṛh. He was also informed by the Commander-in-Chief that an English sergeant and two English soldiers had been executed in the river bed. " The King as if under a divine inspiration, suddenly said, " if I be altogether victorious, I shall go to Agra after the victory and make a pilgrimage to Ajmer and visit the tomb of Salīm Chishtī(?)." On the 20th he inspected the property of some murdered Europeans and ordered it to be made over to the Begam. He visited Salīmgaṛh the following day and inspected a newly raised regiment, which was given the number 56. The *darbār* of the 22nd was the occasion of a complaint by Bakht Khān regarding a rumour in circulation to the effect that he was in league with the English, and was in the habit of " slinking home and leaving his men to fight without

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orders." The Emperor assured him that he trusted him, and "that he (the King) had no cause for enmity with the English, but felt that he would be exalted by the army that had rushed to his protection." The Princes, on this occasion, took exception to the actions of the Commander-in-Chief who whispered in the King's ear in their presence. The General apologised with flattery to the Princes and the matter was dropped. On the 23rd the Emperor visited Salīmgaṛh, while an elephant, brought in by the landholders of Kalanaur (?), was presented to him and sent to the royal stables.

He again inspected Salīmgaṛh on the 28th and afterwards held a *darbār* in the Dīwān-i-'Āmm. "There was a great gathering of officers." Ḥakīm Aḥsān-ullah Khān demurred to one of the Emperor's orders regarding the killing of cows during the *'Īd*, and the Emperor closed the audience in anger. The audience on the 30th was marked by a somewhat similar incident. "The son of Nawāb Muḥammad Mīr Khān was seated during the audience; after Bahādur Shāh had left, Mīr Sayyīd 'Alī Khān said to him: "It is very improper that you should remain seated whilst all other nobles stand, and you, too, must stand in future, and not take a seat, else it will not go well with you." At the audience of August 2nd the Emperor recited the following verses which he had composed and sent to Bakht Khān:—

"May all the enemies of the Faith be killed to-day;
The Firangīs be destroyed, root and branch!
Celebrate the festival of the *'Īd Qurbān* by great slaughter;
Put our enemies to the edge of the sword, slay, and spare not!"

The same evening the officers were attempting to raise the hopes of the Emperor, and exclaimed, "by the help of God, we shall take the Ridge yet. At that moment a round shot from the English entered Salīmgaṛh and killed a sepoy."

On the 7th, while the Emperor was in the Salīmgarh Fort, he received news that the sepoys were coming to plunder the Palace. He was standing in the porch of the gateway at the time, and at that moment some sepoys arrived in search of Aḥsān-ullah Khān who was suspected of being in league with the English. Bahādur Shāh commanded Ḥasan 'Alī Khān, also suspected of treachery, to be hidden behind the throne in the throne room, while Aḥsān-ullah Khān was to be taken to the "underground place for worship,"[1] and it was explained to the sepoys that he

[1] This place has not yet been identified.

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was not in the Palace. After some time they returned and demanded that he should be given up to them. This was refused at first, but the Ḥakīm was eventually handed over to them and confined in the room kept for the custody of the crown jewels.[1]

On August 8th, the Begam sent word to Bahādur Shāh that she, too, was suspected in being in league with the English, and she had been warned that the sepoys intended to plunder the Palace. Ḥakīm Aḥsān-ullah Khān was released on the 10th and restored to favour. In an audience held on the 13th the Emperor objected to the wearing of pistols in his presence. On the 15th three hundred sepoys, "despairing of their pay and disheartened at the result of the rebellion, brought in their fire-arms and left the city through the Calcutta gate for their own homes."

The Emperor held a council of war in the Salīmgaṛh Fort on the 18th. On the 21st Bakht Khān brought some elephants and horses for his inspection, and he went at once to the porch of the gate of the Palace and selected seventeen horses. Salīmgaṛh was visited the next day and the battery there ordered to fire a few rounds, Bahādur Shāh remarking that it was to be regretted that instead of the fire of the English being silenced, their batteries were getting nearer every day. The gunners replied, "no fear, your Majesty; we are getting the better of them." On the 23rd the same battery was ordered to elevate their guns so as to reach the English camp. The heads of five Englishmen, killed at Indore, were brought before the King. General Bakht Khān was accused by his officers of negotiating with the English and orders were issued that he was not to be admitted to the Palace. Several foot soldiers attended the *darbār* and complained that no opium could be purchased in the bazar.

On the 24th the Emperor visited Salīmgaṛh where some excavations for buried treasure were in progress. Nothing was, however, found, save some small field pieces. The following day he went on the river and watched the artillery fire directed on the English from the Fort.

More demands were made for pay by deputations of officers and Bahādur Shāh offered them some of the crown jewels which they refused, saying that they were satisfied of his willingness to give up his life and property to sustain them.

On the 31st of August the coat and shoes of the prophet Muḥammad were brought to the Palace from the Mosque of Nulub-u-din (*sic*).

[1] To the north of the Diwān-i-'Āmm Court.

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The daily *darbār* continued throughout the first half of September, being generally thronged by sepoys demanding their pay, or by the unfortunate inhabitants of the city who were being freely robbed. On September 4th, Sir Thomas Metcalfe's house at the Quṭb was plundered and the property brought to the Emperor. He was much displeased as he had appointed servants for its safe custody.[1] The local jewellers were brought in a body to the Palace on the 7th and were informed that 8 *lacs* of rupees must be immediately forthcoming for the troops, while on the following day the police proceeded to collect three months' rent from all the inhabitants of the city. Much of the money intended for the troops appears, about this time, to have been appropriated by the Princes. Reference is again made to Bahādur Shāh repairing, during these days, to the "underground mosque." Several proclamations were issued that he would lead an attack in person against the English and that all citizens, irrespective of caste, were to take the field. It was rumoured on the 14th that the English would assault the city, and the Emperor remained in his private apartments. The assault, as is well known, actually took place and was successful. The 15th, 16th, 17th and 18th were spent in clearing the mutineers out of the ground between the town walls and Palace, and in shelling the latter and Salīmgaṛh, which was still occupied by the enemy.

On the 19th Bakht Khān represented to the Emperor that his only safety lay in flight, and begged him to accompany him and renew war in the open country. Bahādur Shāh, however, allowed the army to depart without him and took refuge in the tomb of Humāyūn. On the same day the Lahore gate of the Palace, which appeared to be deserted save for an occasional gun shot fired at the troops at the end of the Chāndī Chauk, was blown in. The 4th Punjab Infantry broke the chain of the inner gate by firing muskets close to it, and charged down the vaulted passage (the *Chhatta Chauk*) into the Palace. A single sentry remained in the passage and fired at Lieutenant McQueen, but the bullet went through that officers' helmet only. Shortly after the Palace had been entered from this side Lieutenant Aikman, V. C., also of the 4th Infantry, entered it from Salīmgaṛh, again meeting a solitary sentry only. It was found to be deserted save for some fanatics and wounded sepoys who were quickly disposed of. Headquarters were established in the Palace, which was held by the 60th Rifles and the Kumaon battalion. Major Wilson's personal guard was drawn from the Sirmur Gurkhas, as a compliment to that gallant

[1] Whether he intended to take it for himself or protect it out of a friendly feeling for the owner is a matter of speculation.

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regiment. On the 21st Lieutenant Hodson captured the Emperor a few miles south of the city, and on the following day two of his sons were taken at the tomb of Humāyūn and summarily shot. On the 21st a royal salute was fired in honour of the capture of the city, and on Sunday, the 27th, a thanksgiving service was held in the Dīwān-i-Khāṣṣ. The following January the Emperor of Delhi was brought to trial in the same building, and, after an investigation lasting forty days, he was convicted of having made war against the British, with abetting rebellion, with proclaiming himself the reigning sovereign of India, and with causing, or being accessory to, the death of many Europeans. He was sentenced to be transported for life, and was sent to Rangoon where he died on November 7th, 1862.

"General" Bakht Khān was much sought for after the mutiny but was never found or heard of. He does not appear to have been killed. He was an artillery *subahdār* of a famous field battery and had served with it at Jalalabad under Sale in the first Afghan war. The battery had a mural crown as an honorary decoration on their guns.

Archaeological work carried out in Delhi Fort.

Previous to the year 1903 the historical buildings of the Fort at Delhi and their immediate surroundings were in the most neglected and unsatisfactory condition. Many of them were sadly in need of repair, others were used as barrack rooms or stores, while the area in which they stood was cut up by modern roads, and disfigured by unsightly military buildings. Old levels were obliterated, and the disheartened visitor to the former Palace of the "Great Moghul" wandered aimlessly about from building to building. Seen under these conditions, the place lost much of its interest and it was impossible for the average visitor to revisualise its former condition. The associations of the Fort, its place in history and architecture demanded that something should be done, and the gardens as they now stand, together with the conservation of the buildings in the area, are the outcome of the improvements suggested by the Director General of Archæology in 1902. These suggestions embodied the acquisition from the military authorities of as much of the old area formerly occupied by the Palace as was possible, so that it might be enclosed and kept in a state of orderliness, and the buildings it contained secured from further molestation or damage. This done, the ground was to be reduced as far as was possible to its old levels, the modern buildings and roads removed, and the area was to be laid out in lawns and shrubberies so that the buildings might be seen under more happy conditions.

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The lawns and shrubberies were to represent respectively the position of former courtyards and buildings which had been removed, but whose position was traceable by the help of their buried foundations and old plans. In the case of the northern portion of the area—the Ḥayāt Bakhsh garden, where vestiges of the old water channels and causeways were abundant, but buried under three feet of earth and rubbish—the fact that the gardens would be eventually used for occasions such as the Royal Garden Party held during the recent Darbār, necessitated more reconstructive work, so that the old channels and fountains could be made to fulfill their former functions. It must not be imagined that, small though the area may appear to many, all this has been accomplished with a sweep of the pen. Till 1908 work was going on slowly, and its completion would have taken many more years had it not been that the Coronation Darbar created a demand that the buildings, which had so many years before witnessed the similar ceremonies of the "Great Moghul," should be seen under more ideal conditions.

The evacuation of the ground by the military authorities, the preparation of new buildings to take the place of those removed outside the area, and the difficulties of irrigation owing to the danger of mosquitoes breeding in water standing in the gardens had all to be arranged for, before the scheme could be successfully brought to a conclusion.

In 1904-05 excavations were made on a large scale in the Ḥayāt Bakhsh garden which laid bare the ancient tanks and water channels. The extent of the large tank, of which the Ẓafar Maḥal is the central feature, was also determined. In 1905-06 the work was continued, and a start was made on the reconstruction of the old channels. Fragments of the ornamental kerb and causeways were found between the tank and the "Sāwan" pavilion, and from these, together with the old plans, which showed the border, it was possible to carry out the work with certainty. The large central tank, built by Shāhjahān, appears to have been deepened, probably at the same time as the Ẓafar Maḥal was erected in its centre, and this had been done by building a parapet on the top of the ornamental border. Had this parapet been added by the British the course would have been obvious, but it bore elaborate surroundings and was obviously Mughal work. Accordingly it was felt that the traces of the parapet's existence should not be destroyed, and the missing portions of it have been therefore restored so that the tank can be filled up to the higher level.

The parapet round the tank was completed in 1906-07, while the construction of the four main causeways with their channels,

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pavements and ornamental beds was proceeded with. They were completed in 1907-08, and during the excavation traces of subsidiary channels were discovered, dividing each quarter of the garden into four equal squares. The clearance of the entire site was not attempted until 1908-09, there being difficulties in finding a place to dump the spoil earth taken from the works. Further excavations revealed a pathway on the east side of the garden connecting the north and south pathways. Part of this only was repaired at first, the remainder being completed when the battery and military road to it on the east terrace were removed in 1913. It was a pity that the site could not be lowered to its original level in the first instance, as the sides of the channels, after they were dug out, were found to be in a *kachcha* condition and needing considerable repairs. In the summer of 1908, a conference was held at Simla at which the Director General of Archæology and representative military authorities were present, and among other important points, it was decided that the tank and channels of the Ḥayāt Bakhsh garden could be filled between 1st December and 31st March,[1] servants' quarters within the archæological area demolished, and that the Naubat Khāna, the Shāh Burj and the Mumtāz Maḥal could be included in the area.

In 1909-10 substantial progress was made in the work on the gardens, and the iron railings round the area were practically complete. The main entrance to the garden was fixed through the Naubat Khāna, thereby reviving the old Mughal custom; for it was at this point that all visitors to the court descended from their palanquins or elephants and approached the Royal presence on foot; while one private entrance was provided to the south of the Dīwān-i-'Āmm and a special military entrance near the Shāh Burj, so that access could be gained to the battery on the east terrace. In the Ḥayāt Bakhsh garden the work on the minor intersecting causeways with their water channels had been completed, and the whole of the area of this garden had been lowered to its original level and dressed ready for grass. At the end of the year the work on the water supply which now irrigates the whole garden was well in hand. The water is raised up from two old wells, one of which is outside the area on the barrack square, into reinforced concrete tanks behind the "Bhādon" pavilion, by means of two electrically driven pumps.

The buildings within the area have, since 1902, all been thoroughly repaired. The work on the mosaics in the Dīwān-i-

[1] It has unfortunately been found impossible to arrange for this owing to danger of malaria.

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'Āmm has already been referred to, while modern additions have been removed from the Naubat Khāna, Rang Maḥal and Mumtāz Maḥal, and these buildings restored, as far as compatible with the precepts of archæological conservation, to their former appearance. The Shāh Burj pavilion which was, in 1904, in imminent danger of falling, has been permanently secured, while the pavilions of the Ḥayāt Bakhsh garden have been thoroughly overhauled, and their marble tanks and cascades revealed.

In 1910-11 the Ḥayāt Bakhsh garden was grassed and planted. The positions of the old buildings are indicated by masses of flowering shrubs, while a screen of conifers, backed by *gravillia* trees, masks the iron railings and barracks surrounding the area. With the exception of the east terrace the garden was now complete, and it was easy to see that the whole area, when treated on these lines, gave abundant promise of future charm. Early in January 1911 Sir John Hewett with the Darbar Committee had visited the gardens, and it was decided that a Royal garden party should be held there at the time of the Coronation Darbar, and that the rest of the area should be laid out immediately, in accordance with the scheme of the Archæological Department. The most difficult part of the work remaining to be done was the trenching for the shrubberies and lawns. The débris of old buildings and roads had to be removed and suitable earth provided. The large tank between the Rang Maḥal and the Dīwān-i-'Āmm, which had been filled up and crossed by a military road and a drain, was excavated. Traces were found in its centre of a little square building with a central tank, probably designed on the same lines as the Ẓafar Maḥal in the Ḥayāt Bakhsh garden, and reached by a little causeway, the bases of the piers of which were found *in situ*. These, with what remained of the building, have been carefully preserved. It has not been possible hitherto to provide sufficient water for this tank so the bottom has been grassed. Some of the old coping stones were found in position, and an old stone ring was found, built in one corner of the tank, which points to the probability of its having been screened on occasion from the sun by a *shamīyāna* (sun-awning).

The marble basin, originally belonging to the Fort, but which had found its way into the Queen's gardens in the city (see page 18) was brought back and has been placed in the centre of the little platform in this tank. Old pictures clearly show this basin in place in front of the Rang Maḥal but how far from it it is difficult to judge; it has consequently been placed here as being as near its old position as could be determined with accuracy.

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The paths have been laid down so as to follow as far as possible their old lines. The inner and outer courts in front of the Dīwān-i-Khāss are represented by lawns and the buildings between them by shrubberies, composed of *Inga* hedges, backed by banks of *Acalypher* and *Duranta*, while behind these again are taller shrubs such as *Murya*, *Havelia*, *Bougainvillea* (the compact variety), *Hybiscus*, *Tecoma*, etc. It should be added that in trenching for these shrubberies the foundations of the old buildings were found as expected in almost every case.

Grass courts have similarly been formed in front of the Dīwān-i-'Āmm and Mumtāz Maḥal. In the case of the first, the old courtyard that formerly existed in front of it, and which witnessed the daily *darbār* of the Emperor, was lined at either side by *dālāns* or colonnades, as at Agra. All traces of these had vanished and a military road ran between the Naubat Khāna and the Dīwān-i-'Āmm. The old colonnades are now represented by a screen of *gravillias* and conifers. The line of *gravillias* to the north of the central pathway occupies almost the same position as the old colonnade, but that to the south is unavoidably nearer to the central pathway owing, as has already been said, to its being impossible to remove the military road which runs outside the new railing.

Another shrubbery runs due north and south from the ends of the Dīwān-i-'Āmm and represents the buildings seen starting from the ends of the Dīwān-i-'Āmm in the old pictures and plans. These buildings screened off the private precincts of the Palace from the public eye.

The grass court in front of the Mumtāz Maḥal is not reduced to its original level as yet, and it will be seen that the plinth of this building is still partially hidden. The fragments of a marble tank were found in front of it through which a water pipe had unfortunately been laid. When this portion of the garden is dealt with, it may be possible to do something to expose the tank in question between the Rang Maḥal and the Mumtāz Maḥal. Trenching revealed an underground drain leading to a doorway in the outer wall of the Fort (see page 7), which had apparently been bricked up by Mughal builders themselves.

The other portion of the garden that still remained to be put in order at the end of 1910 was the east terrace of the Ḥayāt Bakhsh garden. This is raised some 5 feet above the level of the remainder of the garden. There were buildings on it formerly and it was found that a retaining wall ran along its western face. The backing of this was found and has been preserved by Mughal brick facing with recessed pointing. This wall ran from the north wall

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of the Ḥammām to the Shāh Burj, but it was impossible, at first, to continue its alignment owing to the presence of the gun battery and military road which gave access to it. The removal of the battery has brought to light traces of the pavilion, the Motī Maḥal, that formerly existed here, which is now represented by the large rectangular clump of shrubbery.

Since 1913 the principal work that has been carried out in the Fort has been in connection with the improvement of the Ḥayāt Bakhsh Garden and the completion of the restored water-channel and causeways therein; while copper-plated doors of appropriate design were affixed to the openings in the Khas Maḥal which had been fitted up in the Mughal manner to enable the visitor to visualise the interior appointments of the period.

The outline of the water-channel named the Nahr-i-Bahisht (Stream of Paradise) disclosed during the excavations in 1910 has since been represented by flower beds. In front of the Hīra Maḥal was also found a shallow basin with a channel leading westward, evidently to connect up with the minor channel of the Ḥayāt Bakhsh garden which runs into the path near this point; from the character of the work it appeared to be of the late Mughal period. The Nahr-i-Bahisht was provided with fountains at frequent intervals and the copper pipes of several of these were found. After passing along the east terrace in the manner described, the water entered the channel in the Ḥammām and so passed on along the outer range of buildings to the Rang Maḥal.

The new water installation also calls for comment. This, besides providing for the irrigation of the garden and shrubberies, enables the channels of the Ḥayāt Bakhsh garden and the Ẓafar Maḥal tank to be filled. It also provides for the working of the fountains in the Ẓafar Maḥal tank and in the main channels running from the "Sāwan" to the "Bhādon" pavilions, and for the cascades in these two last and in the Shāh Burj. The marble channel from the Ḥammām to the south end of the Rang Maḥal can also be provided with water, as formerly, while a fountain jet has been fixed in the marble basin in front of the Rang Maḥal.

The amount of water required to operate the fountains and cascades and at the same time to fill the tanks and channels is very considerable, and continuous pumping for about two weeks is necessary. The military authorities at present object to the water standing in the garden and channels unless covered with kerosine to prevent the breeding of mosquitoes. This consideration also forbade the disposal of the water on the ground below the Fort, and a scheme has accordingly been prepared by which the water can be raised into the tanks again and so reused. However, the removal of certain of the military barracks to the immediate west

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of the Ḥayāt Bakhsh garden has been hinted at, so it is hoped that these difficulties may be eventually overcome and that the fountains and tanks may be permanently provided with water during the cold season and not for important ceremonial occasions only, as at present. The additional charm the sheets of water give to the buildings and gardens cannot be over-estimated.

The removal of the barracks to the west of the Ḥayāt Bakhsh garden would also enable its western portion to be completed, together with the Mahtāb Bāgh, a work which would greatly enhance the charm of the Fort. The acquisition of the strip of ground between the Mumtāz Maḥal and the Asad Burj has also been suggested to the authorities, so that the whole of the east terrace of the Fort, from north to south, may be open to visitors.

The accompanying table shows the amount spent annually on repairs and improvements to the Fort, since 1883-84 :—

	Rs.	A.	P.
1883-84	2,226	0	0
1884-85	6,842	0	0
1885-86	599	0	0
1886-87	8,037	0	0
1887-88	4,645	0	0
1888-89	...		
1889-90	...		
1890-91	3,519	0	0
1891-92	1,230	0	0
1892-93	1,350	0	0
1893-94	1,689	0	0
1894-95	525	0	0
1895-96	731	0	0
1896-97	517	0	0
1897-98	1,760	0	0
1898-99	...		
1899-1900	...		
1900-01	543	0	0
Carried over	34,213	0	0

	Rs.	A.	P.
Brought forward	34,213	0	0
1901-02	509	0	0
1902-03	700	0	0
1903-04	19,123	0	0
1904-05	10,452	0	0
1905-06	26,663	0	0
1906-07	8,106	0	0
1907-08	10,201	0	0
1908-09	34,813	0	0
1909-10	20,092	0	0
1910-11	26,948	0	0
1911-12 (Coronation Darbar year)	81,240	0	0
1912-13	4,881	0	0
1913-14	9,094	0	0
1914-15	6,935	0	0
1915-16	2,747	0	0
1916-17	2,200	0	0
TOTAL	2,98,917	0	0

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ANTHROPOLOGY OF NORTHERN CHINA

BY

S. M. SHIROKOGOROFF

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BY

S. M. SHIROKOGOROFF

Anthropologist of the Museum of Ethnography and Anthropology of the Russian Academy of Sciences at Petrograd

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PREFACE

The present study is the fruit of the author's investigations in Siberia, Mongolia and Northern China made in 1912, 1913, 1915-7 and 1918 under the auspices of the Russian Academy of Sciences at Petrograd and the Russian Committee for Investigations in Central and Eastern Asia. During these investigations the author was always assisted by his wife Mrs. Shirokogoroff, who was charged with ethnographical observations of the life of women and with geographical description. The author, during his archeological excavations on the banks of the Amur River, was also assisted by the curator of the Museum at Blagoveschensk, M. K. Tolmacheff, and the non-professional archeologists Messrs. Guroff and Fedoroff.

Some ethnographical and geographical materials have been published already in Russian, but the major part is only in manuscript. In 1919 there were published an "Essay on the General Theory of Shamanism among the Tungus" (Vladivostok. 1919) the conclusion of which is now published in Vol. LIV of the Journal of N. C. B. R. A. S. and "North-Western Manchuria. A geographical Description based on the Materials of the Expedition" (Vladivostok. 1919). "The Social Organization of the Manchus. The Clan Organization," is now published by the N. C. B. R. A. S. The author has also under preparation the following: "The Ethnography of the Reindeer Tungus of Transkaikalia," "Anthropology of the Nomad Tungus of Transbaikalia," "The Tungus Folk-lore, Vol. I. The Tungus Proper. Texts, Translations and Notes," "The Tungus Folk-lore, Vol. II. The Manchus. Nisan Saman. Text and Translation of a Shamanist Manchu Manuscript." Besides the above mentioned works many data concerning the anthropological, linguistical, ethnographical and archaeological observations have not yet been dealt with. The author has not been able to publish all these works because of the political troubles in Russia and does not expect to be able to publish them soon in the Russian language. The present study does not exhaust all the anthropological materials collected. The author also limited his work to the anthropometrical data on the Chinese only and now publishes some other material as illustrating the principal subject,—the Chinese people. On account of the technical difficulties the individual data concerning the Chinese could not be published in the present study. The author hopes to publish them in his further publications on the Anthropology of this part of Asia. Furthermore, the principal purpose of the present study is to offer a summary description of the physical characteristics of the Chinese and to discover the constituent types. This study, therefore, cannot be considered as a final investigation of the Anthropology of the Northern Chinese—it attempts only to outline further investigations. The author also hopes that anthropological investigation in Central and Southern China, made according to the programme elaborated by the International Commission in Geneva in 1912, is well under way. The author has already started the measurements of Chinese from the Central Provinces, and Prof. D. H. Kulp, of the Columbia University, collaborating with the author, has already effected the measurements

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of over 200 Chinese from Southern China. It is also hoped that the author's attempt to propagate the anthropological study of the Chinese will have promising results.

It must also be noted, that the conditions for working out anthropological materials in China are very unfavorable because of the lack of necessary libraries. The author could not find in Shanghai even very popular books on anthropology and was deprived of the possibility of illustrating his deductions by the evidence of other anthropologists. In spite of these conditions he decided to publish this work, postponing for later publication discussion of the theories of the origin of the Chinese and other ethnical groups which have been proposed by other authors. The present works deals with anthropometrical material while the other authors have used for their generalization and deductions, linguistical, ethnographical and very scanty osteological material which would not bear comparison with measurements taken on the living persons.

The taking of anthropometrical measurements, working out and writing of a study do not exhaust all the conditions of complation of an anthropological research. The publishing of such works is also a necessary condition of a favourable end of anthropological investigations. The history of these investigations abounds in examples when the works have been accomplished, but not published, and in this way lost for science. Another impediment that must be overcome by the author, is the putting of his writing into correct English. The North China Branch of the [illegible] Asiatic Society helped the author to [illegible] works to this end. The author is extremely indebted to [illegible] who proposed the author's work to the Council for publication, to Prof. Kulp, who [illegible] the author to put his first essays into correct English, to the Committee composed of Mr. Abraham, Dr. Chatley and Mr. Stark-Toller, who have been charged by the Council of N. C. B. R. A. S. with the publishing and correcting.

Korea-

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ANTHROPOLOGY OF NORTHERN CHINA

BY S. M. SHIROKOGOROFF

Anthropologist of the Museum of Anthropology and Ethnography of the Russian Academy of Sciences at Petrograd

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CHAPTER

INTRODUCTION

§1. Method of anthropometry. §2. Methods of analysis. §3. General description of the geographical conditions. §4. Ethnical movements. §5. Anthropological investigations.

§1. Method of Anthropometry.

The anthropological subjects measured consist of Chinese (396 males), Manchus (81 males and 50 females), Koreans (142 males), Dahurs (49 males), Tungus of Urulga[1] (65 males and 16 females), Tungus of Barguzin and Nerchinsk[2] (85 males and 26 females), Tungus of Amurland[3] (27 males and 34 females) and Tungus amalgamated with the Russians (16 males). Besides these series I have some measurements I cannot use for comparison because of the limited number of individuals.

In the present work my principal attention was devoted to the Chinese series; the other series mentioned above were taken only for comparison, therefore I shall omit the complete analysis of them. The Chinese series is composed of men from Shantung (185), Chihli (114) and Manchuria (96). The Korean series is composed of men from Northern Korea and the Maritime Province of Siberia. The Manchu and Dahur series are composed of men from the Aigun district of Hei-lung-kiang.

The measurements were taken with the instruments made by P. Hermann, Zurich, and consist of the anthropometer and two callipers. The points on the trunk and limbs as also those on the head and face were taken according to the list of measurements elaborated by the International Commission in Geneva in 1912.[4]

With the anthropometer the points were taken as follows: 1. Stature. 2. Height of the ear hole. 3. Height of the supra-sternal notch. 4. Height of the acromion. 5. Height of the upper edge of the head of the radius. 6. Height of the tip of the styloid process of the radius. 7. Height of the tip of the middle finger. 8. Height of the upper edge of the great trochanter. 9. Height of the knee-joint. 10. Height sitting.

With the callipers the points were taken as follows: 11. Maximum length of the head. 12. Maximum breadth of the head. 13. Minimum frontal breadth (diameter). 14. Physiognomical length of the face. 15. Anatomical length of the face. 16. Interzygomatic breadth. 17. Gonial breadth. 18. Internal interocular breadth. 19. External interocular breadth. 20. Height of the nose. 21. Breadth of the nose. 22. Greatest length of the ear. 23. Greatest breadth of the ear.

---

1. Nomad Tungus who live near Chita, Transbaikalia.
2. Reindeer Tungus, who live within the Northern Transbaikalia.
3. Namely Tungus who live on the banks of the Amur River near Aigun of Hei-lung-kiang.
4. Revue Anthropologique, No. 7-8. Juillet-Août, 1913. p. 281 ff. This list is generally used in Russia. The list elaborated by the Commission in England does not differ from this except in the measurement of the physiognomical length of the face.

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The stature was taken two times: the first time the individual measured was standing with his back to the instrument to take the stature as such; the second time he was standing at $\frac{3}{4}$ profile to the instrument to take the stature and immediately height of the ear hole (from the ground). It was thus possible to work out the height of the head by the subtraction of the height of the ear hole from the stature. Unfortunately the point of the lower end of the tibia was not taken because the anthropometer was always fixed on a plank so that it would have been necessary to change the position of the individual one time more. That was very inconvenient during the field work.[1]

The length of the upperarm was worked out by the subtraction of the height (from the ground) of the upper edge of the head of the radius from the height of the acromion. Other absolute measurements were worked out as above described (See the Roman numeration of the table below). The relative measurements were worked out by the division of a certain absolute measurement by the absolute measurement taken for comparison, and multiplied by 100 for example:

$$\text{Relative length of the arm} = \frac{\text{absol. length of the arm}}{\text{stature}} .100.$$

The characteristics was worked out as follows:

Measurements taken with the anthropometer.

Absolute measurements.

I. Stature (1) (Arabic see above).
II. Height of the head, (1—2).
III. Length ,, ,, upper arm, (4—5).
IV. ,, ,, ,, forearm, (5—6).
V. ,, ,, ,, hand, (6—7).
VI. ,, ,, ,, arm. (4—7).
VII. ,, ,, ,, leg, (8).
VIII. ,, ,, ,, thigh, (8—9).
IX. Height ,, ,, knee-joint, (9).
X. Length ,, ,, trunk, [10—(1—3)].

Relative measurements.

XI. Height of the head $= \frac{\text{I-II}}{\text{I}} .100.$
XII. Length ,, ,, arm $= \frac{\text{VI}}{\text{I}} .100.$
XIII. ,, ,, ,, upperarm $= \frac{\text{III}}{\text{VI}} .100.$
XIV. ,, ,, ,, forearm $= \frac{\text{IV}}{\text{VI}} .100.$

1. This measurement is not of great interest because of the insignificant variations of it among different ethnical units,—ethnoses. I use the term *ethnos* for the unit of ethnological investigation; i.e., tribes, nations, peoples and so on. The motives which led me to introduce this term have been presented in my work "Ethnos.—The General Principles of the Ethnical and Ethnographical Variations." (In Russian, Shanghai, 1923).

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XV. Length of the hand $= \frac{V}{VI}\ 100.$

XVI. „ „ „ leg $= \frac{VII}{I}\ .100.$

XVII. „ „ „ trunk $= \frac{X}{I}.100.$

The measurements taken with the callipers :

Absolute measurements.

XVIII. Maximum length of the head, (11).

XIX. Maximum breadth of the head, (12).

XX. Minimum frontal breadth, (13)

XXI. Physiognomical length of the face, (14).

XXII. Anatomical length of the face, (15).

XXIII. Height of the forehead, (14—15).

XXIV. Intezygomatic breadth, (16).

XXV. Gonial breadth, (17).

XXVI. Internal interocular breadth, (18).

XXVII. External interocular breadth, (19).

XXVIII. Ocular length $= \frac{14—15.}{2}$

XXIX. Nasal length, (20).

XXX. Nasal breadth, (21).

XXXI. Length of the ear, (22).

XXXII. Breadth of the ear, (23).

Relative measurements (indices).

XXXIII. Cephalic index $= \frac{XIX}{XVIII}\ .100.$

XXXIV. Height of the head to the length of the head $= \frac{II}{XVIII}\ .100.$

XXXV. Height of the head to the breadth of the head $= \frac{II}{XIX}\ .100.$

XXXVI. Physiognomical facial index $= \frac{XXIV}{XXI}\ .100.$

XXXVII. Anatomical facial index $= \frac{XXII}{XXIV}\ .100.$

XXXVIII. Gonial index $= \frac{XXV}{XXIV}\ .100.$

XXXIX. Nasal index $= \frac{XXX}{XXIX}\ .100.$

XL. Auricular index $= \frac{XXXII}{XXXI}\ .100.$

XLI. Frontal index $= \frac{XXIII}{XX}\ .100.$

The facial index (XXXVII) is taken sometimes by anthropologists as $\frac{\text{length of the face}}{\text{interzygomatic breadth}}\ .100$, because the indices are always >100. It will be more illustrative and easier during the calculation to take this index, as I did above.

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Of course, besides these measurements it is possible to take and work out some others, but as regards anthropological characteristics, the measurements taken by me will be sufficient for my purpose, namely to discover the anthropological typest hat composet he present Chinese. This list of measurements taken on living persons and the characteristics later worked out constitute my anthropological investigations of the Asiatic ethnoses.

§2. Methods of Analysis.

The arithmetical means, M and MM in my abbreviations, in all the cases have been tabulated and these data have been later elaborated by the method of interserial differences according to Dr. Molisson[1] and Prof. Y. W. Czekanowsky[2] combined by me[3] in a method which provides the means of the differences between MM of the series and simplifies the calculation of the coefficient of interserial differences. Since this method disclosed the fact that the Chinese are not homogeneous, I calculated the coefficients of correlation for the different measurements which had shown the significant differences of MM between the Chinese and those of the other series.

Besides this I have worked out for some measurements the following calculations, (1) standard deviation, (2) coefficient of variation and (3) probable errors of MM.

The method of correlation has helped me to discover the influence of the different anthropological types on the formation of the present Northern Chinese and to elucidate the results of the application of the method of interserial differences.

Though the number of observations, which for brevity I shall indicate as N, in my series is not quite sufficient for any final conclusion as to the components of the present Chinese, nevertheless, I have analysed all my materials with a view to finding new clues for further investigations; and I have attempted to apply new methods to this analysis of the Chinese series. The question of the necessary value of N which might warrant all the calculations is not yet resolved and this study, it may be, will offer new data relative to this problem. At the same time this study would close the hiatus of our knowledge on the anthropology of Northern China.

§3. General Description of the Geographical Conditions.

The part of Asia in which I have secured my anthropological series lies approximately between 35° and 55° of North Latitude and extends from Lake Baikal to the Pacific. It represents four different sets of geographical conditions, which I need to describe first as briefy as possible.

In this part of Asia we must distinguish the Northern region, which includes the part of Transbaikalia north of the Siberian Railroad Line, the northern part of Hulun-Buir

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1. Korrespondenz-Blatt der Deutsch. Gesel. fuer Anthrop. Ethn. und Uhrgeschichte. No. 6/7. 1909, and No. 9/12, 1910.

2. Y. W. Czekanowsky "Zarys metod statisticznych wzastowaniu do antropologii," (In Polish). Warszawa, 1913.

3. The formula and explanation of this method were published in my work "The Problems of Anthropology in Siberia." (In Russian). Petrograd. 1915.

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(Mongolia) and of the Tsitsihar district (Hei-lung-kiang), the land lying on the north and east of the Amur River, i.e., the Amur and partly Maritime Governments of Siberia, and northern districts of the Hei-lun-kiang and Kirin Provinces.

This spacious region is watered by the Amur River and some tributaries of the Lena River and is crossed by four systems of mountain chains running in a general direction from SW to NE.

The part lying within the limits of Hulun-Buir and North-Western Manchuria is a plateau, which I shall call the Manchurian Plateau. It is over 2500 feet above sea level and from it radiate in all directions the mountain chains,—Great and Little Khingan, Ilhuri-Alin, Albazin and Panga Mountains and so on.

Across the eastern part of this Plateau passes the Nonni River and the Sungari River forms the eastern limit of this highland. The northern part of this Plateau is crossed by the Amur River, which breaks through the mountain chains and forms a fertile valley 300-800 feet above sea level. This valley was densely populated during the stone Age.

The part of this region lying in the Transbaikal Government also forms a high plateau—the Plateau of the Vitim River (an affluent of the Lena River) – over 3000 feet above sea level, is subdivided by three water systems,—the Yenesi River basin, the Lena Rever basin and the Amur River basin,—and is bounded on the west by Lake Baikal and on the east by the valley of the Shilka River.[1]

The part of this region that lies within the limits of the Amur Government is traversed by the ranges of Yablonov Mountains and is crossed by affluents of the Amur River.

In all above mentioned subdivisions of this region except the valley of the Amur River the conditions of the meteorology, zoology and phytology are about the same. The summer is very short and cold,—the period of vegetation is from about June 1 to August 1; the winter is excessively cold and long. Therefore the ground during whole year is frozen and does not thaw even in the summer time. According to the geologists this region is now under conditions characteristic of a "dry glacial period." The mountains are covered with excellent forests of green trees and lichens, the best food for the domesticated reindeer. The narrow valleys are so marshy, that some places in this region in summer time are absolutely inaccessible to investigators. The

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1. The Shilka River is the same river as the Amur River. The variations of the names are due to local tribal differences in geographical names. For example, the source of the Amur River within the limits of the Mongolian (Buriat) language is known as the Ingoda River, but within the limits of the Tungus tribes it is called the Shilka River or properly Shilkir. The name Amur arises from "Kara Mur" (the Black River) of the Dahurs who live on the middle course of this river. When the Russians came from Yakutsk (XVII century) into this part of the Amur River valley, they called it by a mutilated name, which was adapted to their own language from the Dahurian. The Manchu name—Sahalan Ula—and the Chinese name—Hei-lung-kiang—are translations of the Dahurian name—the Black River. The lower course of the Amur River among the Manchus is known as Sungari Ula, because they were living on the banks of the Sungari River before they came to know the middle and upper courses of the Amur River.

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conditions are very favourable for wild animals; the region abounds in sable, squirrals, lynx, bears (three species), deer, wild goats, elks, reindeer and many other animals useful for the local hunting tribes. In Manchuria, especially east of the Nonni River, are some tigers and leopards.[1]

The region is populated by Tungus tribes speaking five different dialects and known under the names of Tungus, Orochons, Maneghirs, Birars and so on.[3]

The population in the forests can be estimated at 4000 to 5000 souls only. The common occupation of the Tungus is hunting and partly fishing. Reindee rare used as means of transportation and as a food reserve in time of famine. The Tungus of the Amur River banks, Manchuria and Mongolia have lost the reindeer and are now using horses. They are all organized in paterline clans, have no houses nor permanent residences and are a wandering people.

In this region the Russians, Chinese, Mongols and Manchus have spread along the big river valleys and present all possible types of economic and cultural life. Goldmining, hunting, more seldom agriculture and breeding of domestic animals are the pursuits of the new population of this region. The people in comparison with the population of other regions are very poor and do not number more than some hundreds of thousands.

The Mongols were the first to come into this region some hundreds years ago. After them, in XVII century, came the Russians and Manchus. The Chinese were the latest immigrants, coming in the second half of the last century.

The second region of this part of Asia lies south of the region already described and includes the eastern end of the great steppes of Central Asia. It forms an angle, the top of which is near the confluence of the Nonni and Sungari Rivers in Manchuria. It is crossed by the branches of the Manchurian and Vitim Plateaus and is watered by the systems of the Yenisei and Amur Rivers. The western part of this region lies on the Mongolian Plateau,—over 2000 feet above sea level. It can be characterized as cold, very dry and almost treeless country. It is very rich in pasturage for cattle, horses and camels.

The population of this part consists of Mongols in the south and some Mongolized Tungus in the north,—the Tungus of Urulga, of the Aksha district (in Transbaikalia) and the Tungus on the frontier of Mongolia and Siberia in general. Near Manchuria the Dahurs and Solons (a Tungus group) occupy the eastern borders of this Plateau. The Russians

---

1. Some years ago in Transbaikalia, near Lake Baunt, the Tungus killed a tiger.

2. I omit the Russians, more or less numerous in the valleys of the Ingoda Rever, Shilka River, Amur River, Zeya River and so on, also the peculiar mixed Russian and Chinese population of the gold mines.

3. All these groups recognize their relationship and call themselves "evenki." The above mentioned names were uncritically adopted by writers in their ethnographical and geographical descriptions of this region. The name *Tungus* is a Yakut name for these ethnical groups; the name *Orochon*—from Manchu name *oronču̇n*, which means: "using the reindeer—" was probably adapted by the Evenki themselves; *Maneghir* is the name of an Evenki clan—*managir; birar* can be translated from the Evenki: "living on the banks of the river" (the Amur River) and is borrowed probably from the Manchu—officials. It is of the same origin as *lamut*,—"living on the coast of the sea." The mutilated names: kilin, chilin, kile, byraly, orochi, oroki have arisen from the linguistic mistakes of the Russsian, Manchus, Chinese, and other neighbouring peoples.

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took the best places for agriculture, but do not despise other trades,—hunting, breeding of cattle and so on. The Chinese colonization is just in its beginning so they are not yet numerous in this section. Their principal occupations are commerce, hunting and some agriculture.

The eastern part of this region lies east of the Great Khingan Mountains. It is lower and better for agriculture than the western section. It is populated by Manchus and later Chinese, who little by little squeeze out the original Manchu population. The Chinese colonization based on the occupation of the land for agriculture is very successful. The Russians colonies are only along the railway and have no permanent roots in this country.

The third region is formed of the Manchurian Provinces of Shengking (Mukden) and partly Kirin, also the provinces of Chihli and Shantung in China Proper. In this region I shall distinguish three principal subdivisions, viz., northern part, Chihli and Shantung.

The first subdivision is connected with the first region, the southern limit of which can be fixed not far from the Chinese Eastern Railway line. The southern limit of this subdivision is the coast of Gulf of Pechihli, the eastern limit—the Yalu River, or more exactly the forest region of the Kirin Province, and the western limit—the eastern limit of the Mongolian Plateau. This part of the region is noted for its very fertile soil; it has been populated since ancient times by agriculturists. The moderately developed forests, the system of big rivers, like the Sungari River, Nonni River and Yalu River, and the relatively mild climate form quite favourable conditions for cultural development.

The second subdivision of this region, the Province of Chihli, though very near to the cold Mongolian Plateau, presents the best conditions for agriculture in this third region, in some ways even better than Southern Manchuria.

The third subdivision of this region, the Province of Shantung, a mountainous peninsula with a salubrious climate, quite fertile soil and rich in mineral sources, presents the best imaginable state for the development of all kinds of economic and cultural activities. Its position near the sea facilitates social contacts and results in a population unusually active.

The population of this region is now almost exclusively Chinese. The northern part of it some centuries ago was occupied by Manchus, but the aggressive northward movement of Chinese created the mixed population of Manchus and Chinese. The provinces of Shantung and Chihli are real Chinese territory, but there are, as everywhere in China, Manchu colonies.

The fourth region of this part of Asia is the Korean Peninsula, isolated, mountainous and in some places good for agriculture and mining. Its moderate climate and long sea coast facilitate the development of its population. The climate and topography are always good for plantations of rice, the principal cereal of the Koreans. The isolated position of Korea presents some advantage to her population, who have occupied the country almost exclusively during the last two thousand years. The population of this region consists up to the present time mainly of Koreans. The Japanese colonization is very incomplete.

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§4. Ethnical Movements.

The movement of fhe Chinese from west to east and their expansion from Central China to the north-east and south is the history of this part of Asia. On the other hand the opposition of the northern ethnical groups, the dispersion of these aborigenes and their respective decline represent the history of these groups.

According to the archeological and ethnographical evidences it might be supposed that this part of Asia some four or five thousand years ago was populated by Tungus, Turko-Mongols and Palaeoasiatic groups. The southern part of the second region and whole of the third region were occupied by the Tungus and Turko-Mongols, the ethnical differentiation of which must be referred to prehistoric times. The Tungus groups were probably living to the east and south-east of the Turko-Mongols. All the rest of this part was populated by Palaeoasiatic groups and in addition the whole of the Amur River basin was Palaeoasiatic area. The archeological evidences resulting from my excavations in 1916 and the archeological evidences from the Ussuri River basin, Sakhalien Island, Kamchatka and the lower course of the Amur River, supply materials, which show that the cultural state of the population of these regions was similar. The people lived in underground houses, like some palaeoasiatic groups of the present time, they used the bow and arrows with heads of stone or bone, they practised at one time the ceramic arts and had domesticated animals,—the dog, the pig and, may be, the reindeer. The principal occupations of this population were fishing, hunting and also the searching for nutritive roots. They did not know iron and brass.[1]

The Tungus and Turko-Mongols of the Yellow River basin and Mongolia were in a stoneage culture, but the lack of archeological evidence does not allow me to describe the details of their culture. Meanwhile some ethnographical evidence leads me to suppose, that some ethnical groups used ceramic utensils and knew agriculture.

The original Chinese area at that time was confined to a territory west of these ethnical groups; the question of the original Chinese site, I leave open. For my present study it is not important to be precise as to whether they came from the far western region or were in this territory since the Old Stone Age.

The advances of the Chinese on the east along the yellow River, and from this valley, to the north-east and south, and the pushing back of the Tungus from their original territory eastward and northward were the first important changes preceding the final fixation of the ethnical elements. It can be supposed that the vanguard of the Tungus came through Manchuria to the banks of the Amur River in the second millenium B. C. or, may be, sooner and there pushed out the Palaeoasiatic ethnical groups. They adopted from the Northern Palaeoasiatics the reindeer, the sledge, some utensils and so on, and migrated northward and westward, into Siberia, then almost free from population. In this cold northern country they forgot the ceramic arts but conserved their open coat which is clearly of southern origin, the bow and arrow of the southern type

1. I think that brass may have been known in the southern part of this area beerof the Chinese entered.

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and so on, Their activity led them into the open area of the present Siberia and they pushed the Plaeoasiatics to tne borders of their former area. The Tungus folk-lore offers some evidence regarding these migrations from the south-east to the western region of their present territory. At the present time this territory lies from the Yenisei River up to the Pacific coast and from the Arctic Ocean down to Mongolia and Southern Manchuria,

The second group of Tungus stopped on the southern affluents of the Amur River. They adapted to their culture some palaeoasiatic elements and used underground houses at the time when the Chinese chronicles of the Han Dynasty were written. The breeding of the pig, hunting and fishing, and the culture of "five kinds of cereals" became their principal occupations. These Tungus, the ancestors of the Manchus, formed an independent state in the valley of the Sungari River and pushed out some Palaeoasiatics, who organized their own small state within the limits of the present Maritime Government and Northern Korea. Little by little these later Tungus spread their influence over the isolated Tungus and Palaeoasiatic groups and founded a power within the limits of Manchuria, the Ussuri River basin, and, perhaps, Korea Doubtless the Manchus fell under the influence of their neighbours,—the Mongols, Palaeoasiatics and the later Chinese immigrants. As regards the language, the Manchu, or southern branch of the Tungus linguistic family, in comparison with the proper Tungus, is much less developed from the point of view of grammar and is under the influence of other non-Tungus tongues.

The second important ethnical movement is connected with the success and failure of Turkic and Mongol ethnical groups. The first struggle between the Turko-Mongols and Chinese resulted in the failure of the Turks and this was the immediate cause of the Turkic-Mongol movement northward and westward, who then pushed out some Turkic and Tungus tribes. Those went northward and occupied the valley of the middle course of the Lena River. During this migration they lost the horse and, may be, cattle also but conserved the sheep. Then, in the centre of the Tungus area there is now living a tribe of southern nomadic origin speaking the Turkic dialect or to say better a dialect especially influenced by Turkic tongue—the Yakuts—who differ absolutely from surrounding peoples. The Manchus opposed the Mongol movement from which arose a series of wars. Since a lasting Mongol control of Manchuria was not secured by colonization, the Mongols have been losing their influence over the Manchus. In fact, the history of Manchuria consists in the alternate successes and failures of the struggles among the Mongols, Manchus, other Tungus groups and Palaeoasiatics.

Meanwhile the Chinese civilization, in the growth and spread of its influence over native tribes, created a strong power, which also took part in the racial and ethnical struggle. The control of Korea and Manchuria was the inevitable national objective of the Chinese policy. Many times they took the power but could not keep it and finally lost the control of their own country. Successively the Tungus and Mongol powers controlled China. Now, however, some of these tribes live peacefully together in Manchuria and Mongolia. For example, the Dahurs, who were probably tne founders of the Liao Dynasty (in Manchuria, Mongolia and Northern China), are living now in small villages among the Chinese and Manchus in Manchuria and among the Mongols in Hulun-Buir.

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In the XVII century there appeared a new ethnical factor in this part of Asia. The Russian invasion into the northern region caused great disturbance among the Dahurs who lived in the Aighun district after their political downfall in the XII century; and the Manchu Government was compelled to send military forces to the Amur River. This was not a purely military expedition, but an organized movement to colonize the region with the Manchus who were then organized on a military basis. Such was the accidental origin of the Manchu agricultural colony on the banks of the Amur River. The Russian invasion was not stopped but progressed slowly from Transbaikal into Amurland and Manchuria. In the XVIII century it spread over Transbaikalia, in the XIXth over Amurland and Ussuriland; and in the XXth century it spread over Manchuria and Mongolia. The Manchu Dynasty paid no heed to this migration and finally lost its influence over Northern China. Then because it has no roots in Southern China, it lost its power once insignificant European pressure was exerted.

In spite of this periodical failure of the Chinese to control Manchuria and Mongolia they spread their influence and became the masters of the ethnical situation among the populations of the northern region. By the end of the XIX century their colonies were so large that the Chinese did not need to marry the natives for lack of Chinese women. Meanwhile the Chinese of Manchuria have become so amalgamated with Manchus and other ethnical groups that now it is almost impossible to distinguish the Chinese elements In the Aighun district they were even incorporated in the Manchu military organization with all the special rights conferred thereupon. Thus the Manchus came to represent a very limited portion of the local population and little by little became only a small oasis among the Chinese immigrants.

At the present time the ethnographical distribution can be represented as follow:

The first region is occupied by the Tungus groups of the first Tungus migration except a limited area in the middle course of the Amur River, which is occupied by the Dahurs of uncertain origin but speaking now the Mongolian dialect, the Manchus and some Chinese. The country at the mouth of the Amur River is populated by the Palaeoasiatics —Gilyaks.

The second region is occupied by the Mongols and Mongolized Tungus in the western part and by the Mongolized Tungus and Manchus, also partly the Dahurs in the eastern part.

The third region is occupied by the Manchus and other Tungus groups of southern branch and the Chinese in the northern part and by Chinese in the southern part.

The fourth region is occupied exclusively by the Koreans, the probable descendants of palæoasiatic tribes, influenced by Tungus and Chinese.

Finally, the Russians movement in Manchuria met the Chinese migration and almost stopped it at the southern limit of the first region. Thus at the present time the influence of Chinese and Russian migrations is spreading over the insignificant native population, excepting the Koreans who are under the Japanese political and anthropological influence. The Russian migration is culturally effective because of its military forces and new technical

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knowledge while the Chinese migration is effective because of its adaptability to the local conditions and its quantity.

The general movement of peoples may be thus summarized: First, the movement of the Chinese east, and northward provoked the first Tungus migration and the removal of the Palæoasiatics into Korea and the coasts of Asia. Second, the movement of the Chinese northward provoked the first migration of the Mongols westward, northward and eastward, causing the movement of the Huns into Europe, the migration of a Turkic group northward and a second migration of the Tungus (Manchus). Third, The slow spread of the Chinese was stopped by the later Russians but the sinification of the Manchus is almost accomplished by this time.

§5. Anthropological Investigations (on Living Subjects).

The anthropological investigations of the northern Chinese and other ethnical groups of Manchuria and Korea published up to the present time are so insignificant that they may be neglected. There are some materials on the Mongols (Buriats) and Mongolized Tungus of Transbaikal by Dr. Talko-Hryncewicz and some materials on the Tungus and Palaeoasiatics of Siberia by Mr. J. J. Mainoff and Dr. Yohelson-Brodsky.[1] Besides these materials, the major part of the anthropological investigations of Koreans[2] Gilyaks[3] Goldis[4] and Tungus of eastern part of my first region, as indicated above remain up to the present time unpublished. Some of them are known to me; some of them were elaborated under my direction. The Manchus, the Dahurs, the Tungus of Urulga and Barguzin and the Tungus of the Middle course of the Amur River had never been investigated previous to my expeditions.

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1. For the complete report of the investigations published and unpublished, vide §2, Note 3.

2. In 1915-17, Mr. Konrad of Petrograd University, collaborated with me in his anthropological studies and measured about 200 or more Koreans.

3. The measurements of Mr. L. J. Sternberg, Ethnographer of the Russian Academy of Sciences, and these of Mr. Vasilieff, of the Russian Museum in Petrograd.

4. The Goldis and other Tungus were measured by Mr. Sternberg, Mr. Vasilieff and in 1914 by Mr. Poniatowsky of the University of Krakow. Also Miss Afanasieff, who is Tungus herself, measured some tens of Tungus, but this material and ethnographical collections were burned by the bolsheviks in Nikolaevsk on the Amur River. Besides the above mentioned materials some measurements were made by Mr. Lopatin of Far-Eastern University and Colonel Arsenieff.

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CHAPTER II

PHYSICAL CHARACTERS OF THE CHINESE GROUPS.

§§5-18. Absolute measurements. §19. Generalizations concerning the absolute measurements. §§20-29. Relative measurements (Indices). §30. Some notes on the descriptive characters. §31. Conclusions.

§6. Stature.

The stature of the Chinese varies from 1507 mm. to 1874 mm. The arithmetical mean, which I shall designate M or MM, of the stature is 1665. 7 mm. The following curve of dispersion taken with differential units of 10 mm. gives the graphic expression of variation of strture.

FIGURE 1. *See Page 13.*

TABLE I.

Stature Cms.	N	%	Stature Cms.	N	%	Stature Cms.	N	%
150	1	0.25	163	39	9 95	176	12	3.06
151	1	0.25	164	28	7.14	177	3	0.77
152	1	0.25	165	22	5.61	178	4	1.02
153	2	0.51	166	26	6.63	179	2	0.51
154	3	0.77	167	26	6.63	180	4	1.02
155	5	1.29	168	20	5.10	181	3	0.77
156	7	1.78	169	16	4.08	182	...	...
157	8	2.04	170	19	4.85	183	4	1.02
158	7	1.78	171	19	4.85	184	...	...
159	8	2.04	172	16	4.08	185	...	...
160	19	4.85	173	8	2.04	186	...	...
161	16	4.08	174	7	1.78	187	1	0.25
162	28	7.14	175	7	1.78	...	392	100.00

Thus the mode i.e. the largest number of cases in a range, falling on the range of 1630 mm. which is 375 mm. lower than M. It might be concluded that in the present series this stature is more common and the high M is due to a number of tall men, having a stature over 1750 mm.

The standard deviation, which characterizes the dispersion: $\sigma = 61.44$ and coefficient of variation $V = 3.67$.[1]

1. Some anthropologists suppose the standard deviation and coefficient of variation to be characteristics of the degree of the amalgamation. This must be so theoretically, but up to the present time the variations of the standard deviations and coefficients of variation of the amalgamated and pure populations are not known. Therefore I shall abstain from further deductions as to the meaning of these data, awaiting opportunity for special investigation into the matter.

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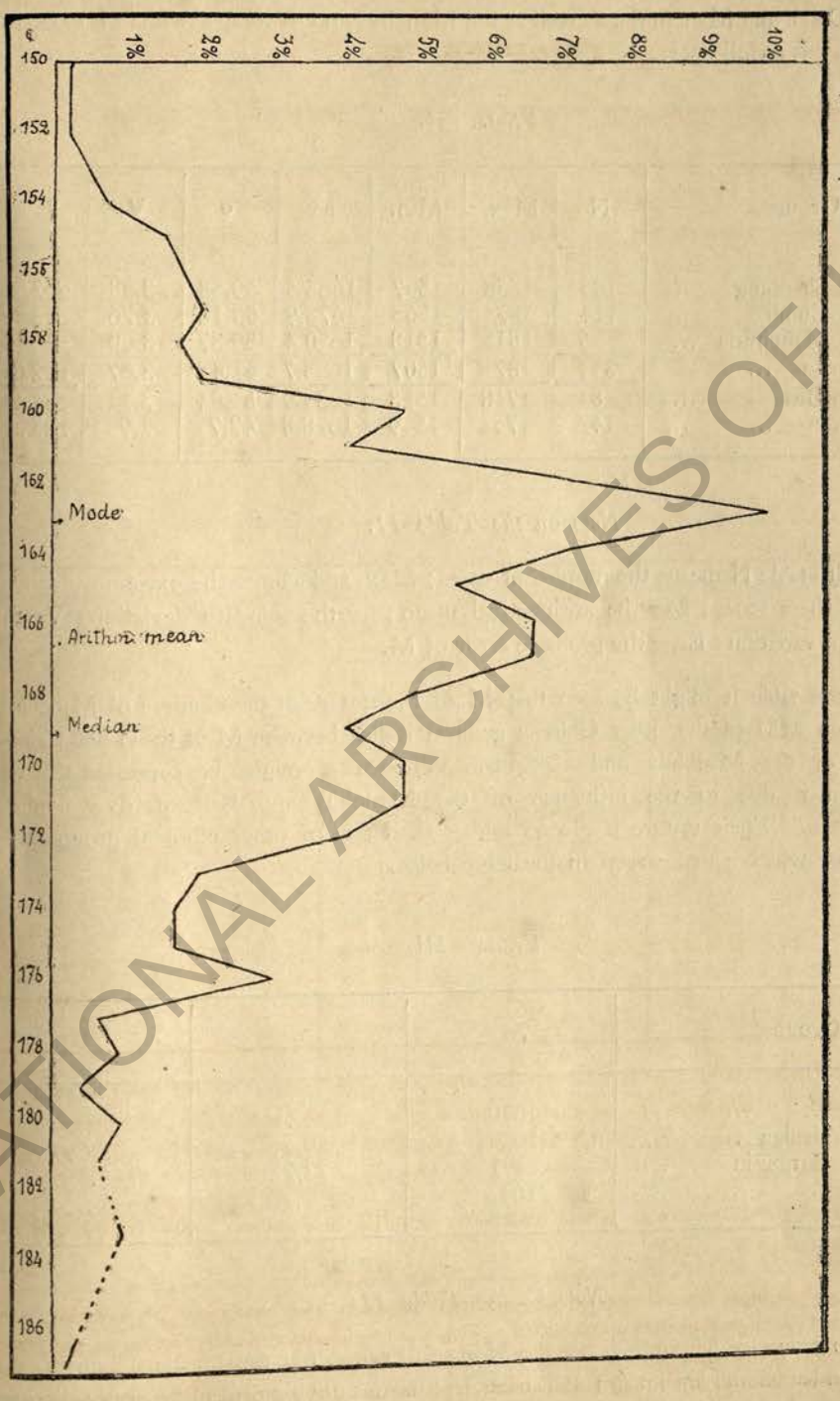

FIGURE I.

STATURE.

(In centimeters.)

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The variation of MM of the stature for the different series,—the Chinese of Shantung, Chihli and Manchuria, as well as the Manchus and Koreans, which I took for comparison,—is as follows :

TABLE II.

Groups	N	Max.	Min.	M	σ	V	E_m
Chinese of Shantung ...	185	1838	1507	1665.5	59.58	3.58	±3.00
Chinese of Chihli ...	114	1874	1565	1678.9	63.16	3.76	±3.84
Chinese of Manchuria ...	95	1815	1518	1650.4	59.37	3.60	±4.15
Total Chinese	394	1874	1507	1665.7	61.44	3.67	±2.05
Manchus	81	1718	1513	1630.9	51.04	3.11	±4.49
Koreans	142	1752	1509	1628.8	47.71	2.93	±3.39

Note on the Table II.

In this table N means the number of cases ; Max. and Min.—the extreme variations observed in these series ; M—the arithmetical mean ; σ—the standard deviation : V—the coefficient of variation ; E_m—the probable error of M.

In this table it might be seen that M of the stature of the Chinese of Manchuria is lower than MM of the other Chinese groups: it lies between M of the Total Cainese and MM of the Manchus and Koreans. Whence it might be supposed that this phenomenon is due to the influence of the Manchus and Koreans over northern Chinese group. Their stature is always higher than that of other ethnical group of this part of Asia, which can be seen in the table below:

TABLE III.

Groups	M	σ	V
Mongols	1630	...	...
Tungus of Urulga	1620	59.36	3.660
Tungus of Barguzin ...	1591	53.72	3.376
Dahurs	1643	...	...

Note on the Table III.

The group of Mongols is not the Mongols Proper, but the northern branch, who live in Transbaikal and are known as Buriats. The anthropological data concerning this Mongol group I have taken from a study of Dr. Talko—Hryncewicz.

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§7. Length of the Arm.

TABLE IV.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	181	844	661	730.6
Chinese of Chihli ...	111	826	621	730.0
Chinese of Manchuria ...	92	808	641	724.8
Total Chinese	386	844	621	728.7
Manchus	75	822	622	706.7
Koreans	137	805	645	715.4

Note on the Table IV.

NN, in comparison with Table II, vary because some measurements I must exclude or do not take. I have excluded all which I could not read exactly and I have not measured the persons who have physical infirmities; I have also omitted some measurements, because of the technical difficulties, as for example very cold room where I was obliged to operate and so on.

This table indicates almost the same type of variations of MM as in the preceding table II, but among the Koreans the arm is relatively longer than among the Manchus. This is clearly exhibited in the table of the relative length of the arm. The variations of MM of the length of the arm among the Chinese groups are quite insignificant.

§8. Length of the Upperarm, Forearm and Hand.

TABLE V.

Groups	Upperarm				Forearm				Hand			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	181	395	269	310.6	182	262	192	236.8	181	221	160	189.5
Chinese of Chihli ...	108	349	275	307.4	104	266	196	236.2	104	253	151	186.5
Chinese of Manchuria.	87	345	266	308.2	87	267	197	235.2	87	227	158	183.5
Total Chinese ...	376	395	266	309.1	373	267	192	236.1	372	253	151	187.3
Manchus ...	75	366	254	294.4	75	288	185	231.0	75	222	558	181.4
Koreans ...	129	345	269	300.6	129	283	195	231.2	129	219	115	183.6

In this table may be seen the same type of variations of MM as in the preceding tables with the exception of MM of the upperarm which slightly differs from it. However, the differences or MM are in all the cases insignificant.

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§9. Length ot the Leg and Thigh and Height of the Knee-joint.

TABLE VI.

Groups	Leg				Thigh				Height of knee-joint			
	N	Max.	Min.	M	N	Max.	Min.	M.	N	Max.	Min.	M
Chinese of Shantung..	185	970	760	854.0	184	474	313	390.3	184	540	394	463.9
Chinese of Chihli ..	112	980	777	862.0	112	484	327	389.3	112	541	417	471.6
Chinese of Manchuria.	94	942	747	842.9	94	449	303	383.1	94	548	393	459.4
Total Chinese ...	391	980	747	853.6	390	484	303	388.3	390	548	393	465.1
Manchus ...	55	916	783	832.0	54	432	333	374.7	54	507	410	456.3
Koreans ...	141	905	741	819.5	141	436	317	378.8	140	495	367	440.5

The differences of MM among the groups are very accentuated in the length of the leg and height of the knee-joint, whence it might be deduced that the length of the leg is due to the variations of the lower part of the leg. Furthermore, the height of the foot does not vary because of the anatomical construction of the leg, and the variations of the height of the knee-joint can be explained by the variability of the tibia. It is quite evident that the variations of MM have the same regularity as in Table II.

Thus in almost all the cases the length of the limbs correlates with the stature. From this standpoint the Chinese groups, the Manchus and the Koreans do not essentially differ. The further tables of the relative measurements will give the evidence of this.

§10. Length of the Trunk.

TABLE VII.

Groups	N	Max.	Min	M
Chinese of Shantung ...	178	652	488	563.5
Chinese of Chihli ...	110	631	510	572.9
Chinese of Manchuria ...	92	659	498	571.7
Total Chinese	380	652	488	568.2
Manchus	47	591	467	547.3
Koreans	140	625	485	553.5

The regularity of the variations of MM in the groups which was observed in the preceding exposition cannot be discovered for the length of the trunk. MM of the Chinese of Chihli and Manchuria are "opposite," relatively to M of Total Chinese, to M of Chinese of Shantung and to MM of the Manchus and Koreans. At the same time they are much lower tham M of Total Chinese. From Table II it is seen that MM of the stature of the same groups have another set of relations, but the variatians of MM of the trunk, though more significant than those of the stature, show a variation tn inverse order.

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Conclusion. MM of the limbs correlates wtih the stature, the length of the leg is the principal cause of the variation of MM of the stature. The length of the trunk does not correlate with the stature.

§11. Length and Height of the Head.

TABLE VIII.

Groups	Length				Height			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	185	205	172	188.27	180	156	116	134.10
Chinese of Chihli ...	113	200	168	186.90	113	154	121	135.44
Chinese of Manchuria ...	96	203	163	183.57	94	149	120	133.64
Total Chinese	393	205	163	186.73	387	156	116	134.38
Manchus	81	194	170	181.94	76	153	119	132.64
Koreans	141	200	165	183.93	137	152	118	134.50

This table shows the differences of MM of the head-length to be very great. M of the head-length for Total Chinese is lower than M of Shantung Chinese but it is very close to M of Chihli Chinese and is higher than MM of the Manchus and Koreans.

M of Koreans is very close to M of Manchurian Chinese who, perhaps, were influenced by Koreans. The head-length correlates with the stature and the other measurements already listed excepting those of the trunk.

Among other ethnical groups of this part of Asia MM of the head-length vary considerably. For example, the Tungus of Barguzin,-the abbreviation for the Tungus of Barguzin and Nerchinsk Districts of the Transbaikal Governments-(M=194.18), the Tungus of the Yakutsk Government (M=192,—by Mr. J. J. Mainoff) have heads longer than the Chinese, but the Mongols (Buriats by Dr. Talko-Hryncewicz, M=187) and the Mongolized Tungus of Urulga (M=186.05) have about the same head-length as the Chinese.

The differences of MM of the height of the head among the Chinese show correlation between the height of the head and the stature but the Koreans exhibit some peculiar characteristics, their M of the height of the head is relatively greater than in the other groups. As regards the correlation of these measurements in general, the evidence concerning other ethnical groups proves that the height of the head sometimes can characterize an anthropological type. For example, the Mongols have very low head (M=127) and influence the Tungus of Urulga (M=134.6).[1] At the same time the Tungus of Barguzin in spite of their small stature (M=1598.4) have about the same height of the head as the Chinese (M=134.50). The Dahurs have the head relatively lower (M=133.20) than the Chinese.

1. A group of these Tungus has the height of the head still lower (M=126.9).

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§12. Maximum Breadth of the Head.

TABLE IX.

Groups	N	Max.	Min.	M
Chinese of Shantung	184	162	135	147.68
Chinese of Chihli	113	161	138	149.21
Chinese of Manchuria ...	96	170	137	153.71
Total Chinese	393	170	135	149.55
Manchus	80	161	143	151.31
Koreans	141	166	143	153.72

This table shows the same regularity of the variations of MM of head-breadth, but in an inverse order. In this measurement the Chinese of Manchuria are very close to the Koreans. It is interesting also to note that the Mongols (M=160) and the Mongolized Tungus (M=157.58), as well as the Tungus of Barguzin (M=158.14) have broad heads similar to the Chinese of Manchuria. Hence might be supposed an influence of these groups over the northern Chinese. Though M of the head-breadth of the Manchus is lower than M of the Chinese of Manchuria the form of the head of the Manchus is the same, but the Manchus differ from this group of the Chinese by the smaller size of their heads in general. This gives some right to suppose that the Manchus are always very close to the other groups of this region. The Dahurs have the head-breadth (M=149.86) about the same as the Chinese of Chihli, but the form of the head is closer to that of Manchus.

§13. Maximum Interzygomatic Breadth and Minimum Frontal Breadth.

TABLE X.

Groups	Interzygomatic				Frontal			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung	184	153	125	140.77	184	119	95	104.81
Chinese of Chihli	113	155	126	140.13	114	119	92	104.49
Chinese of Manchuria	96	155	130	142.14	96	116	96	105.79
Total Chinese	393	155	125	141.09	394	119	92	104.96
Manchus	79	150	131	140.28	80	118	97	105.35
Koreans	141	157	130	143.76	141	120	95	106.30

The same regularity of the variations of MM can be observed in this table. This is quite natural, because these diameters must correlate with the head-breadth; but he variations are always less significant than in the case of the breadth of the head. The variations of MM of the frontal diameter are more insignificant than those of the

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interzygomatic breadth. These diameters are more developed among the Chinese of Manchuria, which can be explained by the influence of their neighbours—the Koreans. But the Manchus have M lower than the Chinese of Manchuria; they have generally a head of smaller size. Other ethnical groups of this part of Asia have diameters higher than the Chinese. The Mongols (M=153), the Tungus of Urulga (M=146.8), the Tungus of Barguzin (M=147.72) have MM of interzygomatic breadth higher than the Koreans.[1] But the Dahurs are quite close (M=140.01) to the Manchus. MM of the frontal diameter show the same type of variations (the Mongols—M=112; the Tungus of Urulga,—M=108.4; the Tungus of Barguzin,—M=105.77; the Dahurs,—M=105.24). Thus MM of these diameters of the Chinese of Manchuria relatively to the Chinese of China Proper are higher. This is to be explained by the influence of the Koreans and other ethnical groups of this part of Asia.

§14. Gonial Breadth.

TABLE XI.

Groups	N	Max.	Min.	M
Chinese of Shantung	185	125	94	109.28
Chinese of Chihli	114	125	96	109.18
Chinese of Manchuria ...	96	122	95	109.56
Total Chinese	395	125	94	109.32
Manchus	80	130	97	110.47
Koreans	140	128	99	112.48

Here the insignificant variation of MM does not give any materials for comparison. MM of the gonial breadth of other ethnical groups exceed MM of the Chinese (the Tungus of Urulga—M=112.3; the Tungus of Barguzin—M=111.18; the Dahurs —M=110.53; and the Mongols—M=118.).

§15. Physiognomical and Anatomical Length of the Face and Height of the Forehead.

TABLE XII.

Groups	Physiognomical L.				Anatomical L.				Height of Forehead			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	184	215	169	191.64	184	134	98	117.72	183	93	59	47.07
Chinese of Chihli ...	112	212	173	192.76	113	135	105	117.78	112	88	58	76.09
Chinese of Manchuria.	96	219	176	191.41	96	132	106	117.85	96	90	58	73.68
Total Chinese ...	392	219	169	191.90	393	135	98	117.77	391	93	58	74.30
Manchus ...	79	202	170	188.29	80	132	104	117.67	80	82	56	70.17
Koreans ...	141	219	174	194.67	141	136	103	117.16	141	92	62	77.51

1. It is interesting to note that the half-bred (Tungus and Russians) have the interzygomatic diameter (M=141.5) and the frontal diameter (M=103.3) lower than the pure Tungus.

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In this table may be observed very insignificant variations of MM of the physiognomical length of the face and no variations of MM of the anatomical length of the face, but very accentuated variations of the height of the forehead, correlating with the variations of the physiognomical length of the face, whence it may be concluded that the differences of the length of the face are due to the difference in the development of the foremost part of the crania. The influence of the Manchus over the Chinese of Manchuria, it seems to me, is higher than that of the Koreans. The following table will show the comparative materials for other ethnical groups.

TABLE XIII.

Groups	Physion. L.	Anatom. L.	Forehead
Tungus of Urulga ...	187.7	120.8	66.9
Tungus of Barguzin ...	189.05	116.44	72.61
Dahurs	193.37	118.06	75.45
Mongols	192.	...	...

From this table and Table XII it can be shown that the Tungus influenced the Manchus and these on the other hand influenced the Chinese, because MM of the Chinese of Manchuria are lower than MM of other Chinese groups. It is interesting to note that M of the Mongols is about the same as M of Chinese of Chihli, but lower than M of the Koreans.

§16. Length and Breadth of the Nose.

TABLE XIV.

Groups	Length				Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	183	50	34	41.57	185	47	29	37.12
Chinese of Chihli ...	113	51	36	41.73	113	42	32	37.31
Chinese of Manchuria ...	96	51	34	42.39	95	44	31	37.02
Total Chinese	391	51	34	41.81	393	47	29	37.14
Manchus	81	53	37	45.38	81	45	33	37.86
Koreans	141	54	31	40.79	141	43	31	37.33

This table shows the same type of variations of MM, but MM do not vary greatly. It might be noted that the Koreans have M of the length of the nose lower that the Chinese groups and the Manchus' M is higher than the highest M of the Chinese. The variations of MM of the breadth of the nose are quite insignificant. The table of the nasal index will better illustrate this character, therefore I shall now abstain from further deductions. The measurements taken with other ethnic group are as follows :

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Groups	Length	Breadth
Tungus of Urulga ...	48.89	39.06
Tungus of Barguzin ...	45.50	39.29
Dahurs	42.65	36.04

§17. Length and Breadth of the Ear.

TABLE XV.

Groups	Length				Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	183	72	52	63.73	183	39	27	32.52
Chinese of Chihli ...	113	76	52	64.66	113	38	27	32.50
Chinese of Manchuria ...	96	78	54	63.64	96	40	28	32.74
Total Chinese	392	78	52	63.98	392	40	27	32.55
Manchus	81	77	54	64.95	81	40	25	33.15
Koreans	141	76	50	63.97	141	36	26	30.74

Very insignificant variations of MM do not permit of any reliable conclusions. Besides my own data there is no evidence for other ethnic groups, but the Dahurs, who have M of the length of the ear (M=66.76) higher than that of Chinese groups and M of the breadth of the ear very close (M=32.92) to M of the Chinese.

§18. External and Internal Interocular Breadth and Ocular Length.

TABLE XVI.

Groups	Extern. interoc. Br.				Intern. interoc. Br.				Ocular L.			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	184	108	85	95.27	184	40	27	34.29	185	35.0	25.0	30.49
Chinese of Chihli ...	113	106	80	96.13	113	41	27	34.29	113	36.5	25.5	30.92
Chinese of Manchuria.	95	104	87	96.09	95	40	26	33.61	95	36.5	28.5	31.24
Total Chinese ...	392	108	80	95.70	392	41	26	34.12	393	39.5	25.0	30.79
Manchus ...	81	106	80	93.46	81	41	28	34.10	81	35.0	25.0	29.68
Koreans ...	142	105	82	95.29	142	43	28	33.94	142	34.5	27.0	30.67

This table shows certain peculiarities for the Chinese of Manchuria. They have MM of the external breadth and ocular length a little higher than those of other Chinese groups while the internal breadth is lower. This correlates with M of interzygomatic breadth and the narrow nose of this group. Other ethnic groups of this area show very broad variations as follows :

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TABLE XVII.

Groups	Extern. interoc.	Intern. interoc.	Ocular
Tungus of Urulga ...	92.8	34.0	29.27
Tungus of Barguzin ...	99.38	36.95	31.09
Dahurs	91.43	32.78	29.33

§19. Generalizations Concerning the Absolute Measurements.

From the preceding exposition the following conclusions may be deduced.

1. The variations (the limits of the maximums and minimums) of the measurements among the Chinese generally are more significant than among the Koreans and Manchus. The coefficient of variation of the Chinese is higher than that of Manchus and Koreans. It would appear, therefore, that the Chinese are not homogeneous and that the Koreans are more homogeneous than Manchus.

2. The stature and head-breadth correlate with all other measurements except those of the nose and ear and the length of the face.

3. The Chinese of Manchuria on the basis of MM are closer to the Manchus and Koreans than to the other Chinese groups while MM of the Manchus in many cases are very close to MM of other ethnical groups of this area.

RELATIVE MEASUREMENTS.

§20. Length of the Arm.

TABLE XVIII.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	181	49.01	39.06	43.83
Chinese of Chihli ...	111	48.26	39.69	43.52
Chinese of Manchuria ...	92	49.54	39.37	43.86
Total Chinese	384	49.54	39.06	43.75
Manchus	75	49.53	39.34	43.28
Koreans	134	48.43	40.47	43.94

This table shows such insignificant variations of MM that I have been led to appreciate relative homogeneity between the Chinese and other groups on the basis of the relative length of the arm. In fact, in the preceding subdivision of the present chapter, I drew conclusions based on the probable correlation of these measurements with stature.

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This table confirms exactly those conclusions. However, this character, in comparison with other ethnical groups of this area, shows some difference of MM, as may be seen from the following data. The Mongols have M of the relative length of the arm higher —M=47.39 and other groups as follows: the Tungus of Urulga—M=45.38, the Tungus of Barguzin—M=44.59 and the Dahurs—M=43.75. Thus no Mongolian influence over the Chinese, Manchus or Korean can be observed from these data. In my study on the Anthropology of Nomad Tungus of Urulga I came to the conclusion that this group is influenced by the Mongols, who are characterized by a very high M of the relative length of the arm. Therefore, I concluded that the original length of the arm of the Tungus must be less than that of the Nomad Tungus of Urulga. This supposition has been confirmed by the later data,—the measurements of the Tungus of Barguzin.

§21. Length of the Upperarm, Forearm and Hand.

TABLE XIX.

Groups	Upperarm				Forearm				Hand			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	181	48.64	39.41	42.29	181	35.22	26.48	32.42	181	29.50	22.68	25.33
Chinese of Chihli ...	108	45.56	37.53	42.0	104	34.10	28.89	32.35	104	30.63	23.02	25.48
Chinese of Manchuria.	87	44.82	38.96	42.39	87	35.32	29.14	32.42	87	28.96	22.9[illegible]	25.31
Total Chinese ...	376	48.64	37.53	42.26	372	35.32	26.48	2.37	372	30.63	22.68	25.37
Manchus ...	75	46.35	38.42	41.62	75	37.73	27.87	32.68	75	29.92	22.80	25.75
Koreans ...	129	44.44	38.74	42.01	129	35.01	28.99	32.31	129	28.66	22.96	25.67

This table shows some new data confirming the above supposition on the correlation of these measurements with the stature. It is interesting to note that Manchus have M of the upperarm a little lower than MM of the forearm and hand in comparison with MM of the Chinese. This phenomenon can be explained by the Tungus influence, as is seen in the table below :

Groups	Relat. length of upperarm
Mongols	43.59
Tungus of U ga ...	41.74
Tungus of Barguzin ...	41.49
Dahurs	41.82

The length of the upper arm of the Chinese is higher than that of Manchus and lower than that of Mongols.

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§22. Length of the Leg and Trunk.

TABLE XX.

Groups	Leg				Trunk			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	185	57.87	46.68	51.30	178	38.47	28.62	33.86
Chinese of Chihli ...	112	55.51	47.73	51.36	110	37.55	29.88	34.11
Chinese of Manchuria ...	94	54.45	47.50	50.96	92	38.09	28.98	34.65
Total Chinese	391	57.87	46.68	51.24	380	38.47	28.62	34.12
Manchus	54	56.24	49.16	51.58	47	36.55	28.86	33.84
Koreans	141	53.41	46.16	50.30	140	37.77	29.94	33.98

This table shows very insignificant variations of MM. I have no data for comparison but the Dahurs, who have M of the leg (M = 52.11) higher than the Chinese and M of trunk lower (M = 32.99). Because of the lack of data I shall refrain from further generalizations.

Thus the Table XVIII, XIX and XX do not show any new facts which can disturb the preceding conclusions concerning the general type of the variations of MM for different groups and measurements. It might be noted that the relative measurements do not exhibit significant variations (the limits of the maximums and minimums); that MM are relatively stable, whence it may be supposed that the anthropological types, composing the ethnical groups of the present study, do not differ one from other in regard to these measurements; and that the non-Chinese groups,—the Mongols and Tungus,—differ essentially from the Chinese, Manchus and Koreans. Therefore, these measurements serve in a limited way as a method of differentiation of anthropological types.

§23. Cephalic Index.

TABLE XXI.

Ceph. Index	N	%	Ceph. Index	N	%
70	2	0.51	84	18	4.59
71	6	1.53	85	17	4.34
72	3	0.77	86	9	2.30
73	13	3.32	87	13	3.32
74	25	6.38	88	10	2.55
75	19	4.85	89	3	0.77
76	28	7.14	90	4	1.02
77	33	8.42	91	1	0.25
78	42	10.71	92	...	...
79	38	9.69	93	...	...
80	26	6.63	94	1	0.25
81	29	7.40	95	1	0.25
82	28	7.14	96	1	0.25
83	22	5.61	...	392	100.00

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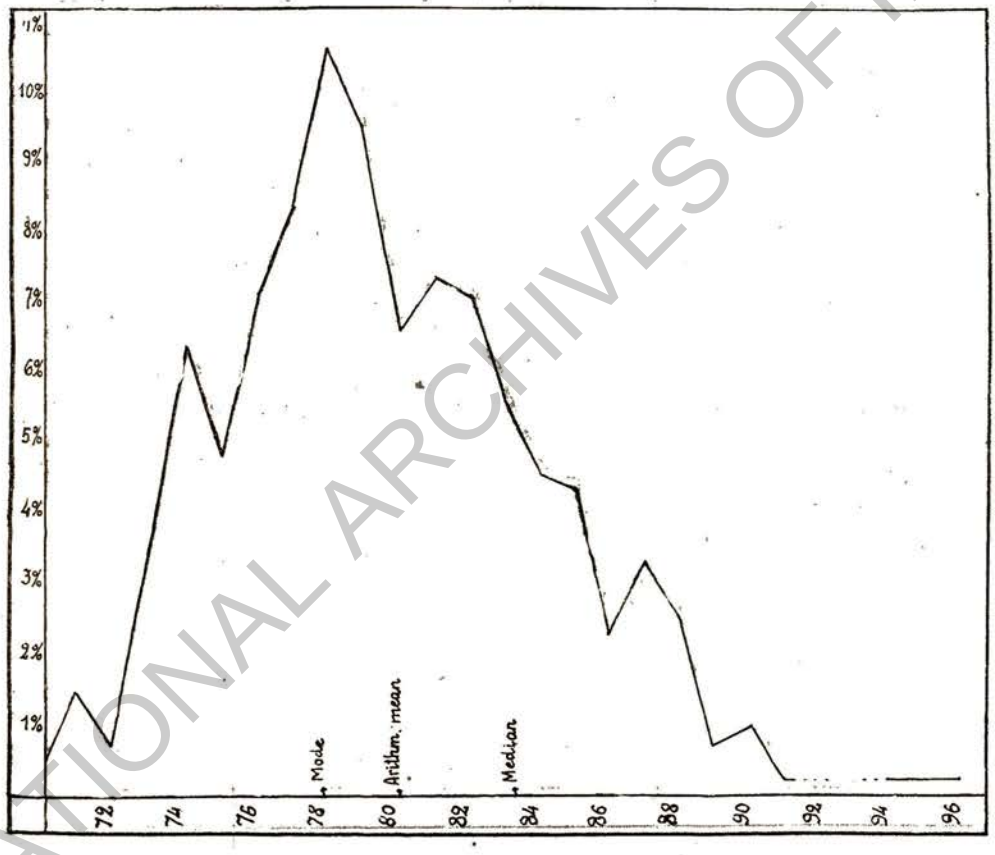
The individual variations of the cephalic index are within the limits from 70.44 to 96.43. M of the cephalic index of Total Chinese = 80.17. The following curve of the dispersion, taken with difference of one degree, gives a graphical expression of the variations of the cephalic index.

FIGURE II.

CEPHALIC INDEX.



The maximum of the cases falls on the range of 78 which is 2 degrees lower than M. The group of individuals who have low cephalic index in the present series is more significant, whence the incidental character of the group with high cephalic index can be deduced. The standard deviation, $\sigma = 4.507$, and the coefficient of variation, $V = 5.604$, are higher than in the case of the stature ($V = 3.67$).

The variations of MM of the cephalic index will be as follows:

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TABLE XXII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	184	89.53	70.44	78.51	3.744	4.768
Chinese of Chihli... ...	113	91.07	71.13	79.92	3.742	4.682
Chinese of Manchuria ...	96	96.43	73.98	83.64	4.489	5.366
Total Chinese	393	96.43	70.44	80.17	4.507	5.604
Manchus	80	89.94	76.12	83.52	2.652	3.056
Koreans	141	93.10	74.48	83.69	4.154	4.963

This table shows very great differences of MM between the Chinese of China proper, the Chinese of Manchuria and the Manchus and Koreans. The high cephalic index of the Chinese of Manchuria can be explained by the influence of their neighbours —the Manchus and Koreans. Taking into consideration the individual variations of the cephalic index among he Koreans, i.e., from 74.40 to 93.10, and of the Manchus, i.ef from 76.12 to 89.94 and of the Chinese of Manchuria, i.e. from 73.98 to 96.43, I consider the influence of the Koreans to be probably greater than that of the Manchus Some hint as to the amalgamated character of the Chinese of Manchuria can be seen from the standard deviation and the coefficient of variation of this Chinese group. This latter group has the highest standard deviation, which influenced the numerical value of the standard deviation of Total Chinese series. Further, the large variations of the individual cephalic indices among the Chinese of Shantung and Chihli show that these groups are not homogeneous at all. In the following exposition this supposition will be supported by other proofs,

The cephalic index of other ethnical groups of the area under consideration is very instructive and is as follow:

TABLE XXIII.

Groups	M	σ	V
Tungus of Urulga ...	84.93	3.925	4.621
Tungus of Barguzin ...	81.10	2.576	3.176
Mongols (Buriats) ...	85.66	...	...
Dahurs	81.41	...	...

The above table needs to be supplemented by further data. Some Mongols, as for example the Buriats of the Irkutsk Government, have a cephalic index higher than the Mongols measured by Dr. Talko-Hryncewicz. The Mongols of Mongolia Proper have

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a cephalic index a little lower, but their neighbours, the Kirghiz, by their M are very close to the Mongols of Dr. Talko-Hryncewicz. The Gilyaks have M of the cephalic index about the same as the Tungus of Urulga.[1] Some Tungus groups have a cephalic index lower than the Tungus of Barguzin, for example, the Tungus of the Yakutsk Government and of the region of the Amur River.

Thus in this part of Asia all forms of the head are to be found The cephalic index of different ethnical groups varies from 78 (M of the Chinese of Shantung) to 88 (M of the Buriats of Irkutsk Government). By the side of the real brachicephals can be observed moderate dolichocephals,—for example, the Koreans and Chinese of Shantung. It seems to me that no regularity can be observed in the distribution of tbe cephalic index in the latter this part of Asia. Moderate brachicephaly alternates with moderate dolichocephaly, and alternates with super-brachicephaly. Therefore I think that a use of the pure geographical method cannot discover the real meaning of such characteristics among Asiatics.

§21. Indices of the Height of the Head on the Length and on the Breadth of the Head.

TABLE XXIV.

Groups	Height ÷ Length				Height ÷ Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	180	83.89	62.50	71.17	180	100.00	77.56	90.82
Chinese of Chihli	112	84.15	65.41	72.53	112	102.74	81.17	90.81
Chinese of Manchuria ...	94	82.25	65.76	72.93	94	98.01	75.93	87.16
Total Chinese	386	84.15	62.50	72.41	386	102.74	75.93	89.92
Manchus	76	83.15	63.33	72.86	76	98.71	78.48	87.43
Koreans	137	82.86	65.75	73.16	137	97.95	77.36	87.67

In this table can be observed insignificant variations of MM of the first index and more significant variations of MM of the second, which are always less variable than MM of the cephalic index. The explanation of this phenomenon is as follows: as already shown, the absolute measurements in general correlate with the stature, particularly, the height of the head correlates with the stature. At the same time, as I have shown, the variations of MM of the cephalic index are due to the variations of the anthropological types which are included in Chinese. Thus, on the one hand, the influence of the stature on the height of the head and, on the other hand, the influence of the anthropological types combine in these indices and confuse the results. The more significant variability of the second index is due to the more variable head-breadth (See §13). Nevertheless, from the above mentioned causes, the type of variations of MM is the same as in the preceding cases. The peculiar character of the Chinese of Manchuria may be explained by the influence of the Manchus and Koreans.

1. Accordnig to the data of Mr. L. J. Sternberg.

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The evidence of other ethnical groups, as it might be seen from Table XXV, support the above supposition.

TABLE XXV.

Groups	Height ÷ Length	Height ÷ Breadth
Tungus of Urulga ...	72.59	85.19
Tungus of Barguzin ...	69.77	85.51
Mongols (Buriats) ...	67.91	79.38
Dahurs	72.37	88.73

It is very significant that the Tungus differ characteristically from other ethnical groups by their relatively long head. Therefore, it might be supposed that the variations of MM of the Chinese, Manchus and Koreans are due to the non-Tungus influence and probably to some aboriginals of Manchuria.

§25. Frontal Index.

FIGURE III. *See Page 29.*

TABLE XXVI.

Frontal Index	N	%	Frontal Index	N	%	Frontal Index	N	%
50	2	0.51	64	15	3.86	78	10	2.57
51	...	...	65	10	2.57	79	10	2.57
52	...	...	66	19	4.88	80	15	3.86
53	1	0.26	67	24	6.17	81	8	2.06
54	4	1.03	68	17	4.37	82	2	0.51
55	2	0.51	69	17	4.37	83	4	1.03
56	2	0.51	70	25	6.43	84	6	1.54
57	1	0.26	71	20	5.14	85	1	0.26
58	6	1.54	72	29	7.49	86	2	0.51
59	7	1.80	73	29	7.49	87	2	0.51
60	6	1.54	74	16	4.12	88	1	0.26
61	8	2.06	75	19	4.88	Total	387	100.00
62	17	4.37	76	14	3.60			
63	8	2.06	77	10	2.57			

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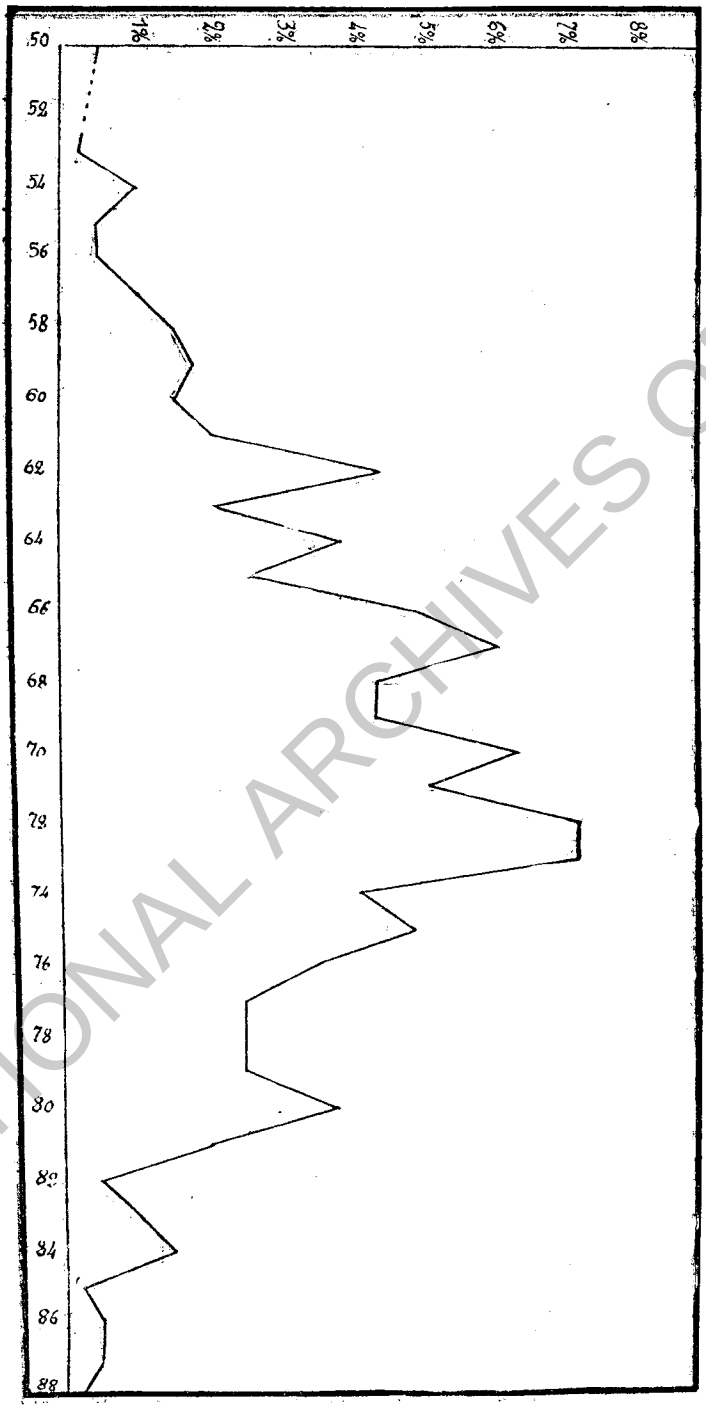

FIGURE III.

FRONTAL INDEX

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TABLE XXVII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	183	88.12	54.13	70.77	6.855	9.686
Chinese of Chihli	113	87.12	50.91	71.97	6.295	8.747
Chinese Manchuria ...	96	84.90	53.57	69.78	7.110	10.189
Total Chinese	392	88.12	50.91	70.62	6.948	9.839
Koreans	77	82.83	50.90	67.08	6.536	9.742
Manchus	140	91.67	57.41	72.87	6.742	9.252

This table shows that the standard deviations are very high, M of the Chinese of Manchuria is lower than that of other Chinese groups and it is closer to M of the Manchus. In §15 I have noted that the high M of the height of the forehead is characteristic of the Chinese of Chihli; in the present table it may be seen that this group has the highest M of the frontal index, which can be correlated with the height of the head, as can be seen from the Table XXVIII.

TABLE XXVIII.

Groups	Height Head	Height Forehead	Frontal Index
Chinese of Shantung ...	134.10	74.07	70.77
Chinese of Chihli ...	135.44	76.09	71.97
Chinese of Manchuria ...	133.64	73.68	69.78
Total Chinese	134.38	74.30	70.62
Manchus	132.64	70.17	67.08

The evidences from other ethnical groups of this area show some distinguishing characteristics of the Dahurs (M=79.43) and an explanation at the same time of the very low M of the Manchus which suggest the influence of the Tungus (the Tungus of Barguzin, M=68.11; the Tungus of Urulga, M=61.80).

§26. Facial Indices (Physiognomical and Anatomical).

TABLE XXIX.

Groups	Physiognomical				Anatomical			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	182	84.21	62.33	73.45	183	97.04	71.72	83.99
Chinese of Chihli ...	111	83.80	54.45	73.01	111	97.67	73.29	83.78
Chinese of Manchuria ...	96	86.11	63.79	74.16	96	95.56	70.47	82.96
Total Chinese	389	86.11	54.45	73.55	390	97.67	70.47	83.67
Manchus	78	84.71	66.83	74.57	79	95.56	74.31	83.87
Koreans	140	83.70	67.16	73.96	140	94.20	69.48	81.55

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Though these indices do not show the significant differences of MM, nevertheless they do distinguish the particular character of the Chinese of Manchuria. This particularity may be explained by the influence of the Manchus and Koreans. In general the variations of MM of the facial indices do not s how great differences.

The comparison with the characteristics of other ethnical groups do not furnish any useful data for the present study.

TABLE XXX.

Groups	Physiognomical	Anatomical
Tungus of Urulga ...	78.19	83.07
Tungus of Barguzin ...	78.77	78.90
Dahurs	72.40	84.38

In this table must be noted some peculiar character of the Dahurs who differ from other groups, also the peculiarity of the Tungus of Barguzin, who have the faces relatively more round but a low cephalic index.[1]

§27. Gonial Index.

TABLE XXXI.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	184	85.82	64.83	77.87
Chinese of Chihli ...	113	88.03	68.57	77.54
Chinese of Manchuria ...	96	86.92	67.38	77.13
Total Chinese	393	88.03	64.83	77.59
Manchus	80	88.65	68.80	78.66
Koreans	139	88.32	67.57	78.10

This table shows very insignificant variations of MM among the Chinese groups. Therefore the gonial index cannot taken as the characteristic for differentiation of the anthropological elements composing the Chinese.

Among other ethnical groups MM of this index are more variable: M is relatively low among the Tungus of Barguzin (M=75.41) and high among the Dahurs (M=78.92). The Tungus of Urulga (M=76.71) and Mongols (M=77.12) show intermediate characters of this index. In my study on the Anthropology of the Tungus of Barguzin I have concluded that the low gonial index is characteristic for these Tungus.

1. Some anthropologists presume a correlation between the cephalic index and the facial index, but it does not follow from these data. This character is peculiar to the skulls of Cro-Magnon type ; it was also observed among the Eskimos, Chukchis and so on.

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§ 28. Nasal Index.

TABLE XXXII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	183	118.18	69.05	89.86	10.263	11.421
Chinese of Chihli ...	113	110.80	70.83	90.02	9.191	12.005
Chinese of Manchuria ...	96	110.00	65.96	87.98	9 787	11.124
Total Chinese	392	118.18	65.96	89.45	8 860	9.91
Manchus	81	102.63	62.92	83.02	8.12	9.79
Koreans	141	125.81	64.00	92.49	11.63	12.57

This table is interesting solely because of the very high deviation connected with the excessive variability of this index. The regularity of the variations of MM of different groups is also sufficiently marked. The amplitude of the individual variations of nasal index lies approximately within the extreme limits of variation observed up to the present time among all known ethnical groups.

TABLE XXXIII.

Nasal Index	N	N[1]	%
65 66	1 1	2	0.51
67 68	... ...	...	...
69 70	1 2	3	0.77
71 72	1 5	6	1.53
73 74	8 3	11	2.81
75 76	8 14	22	5.61
77 78	7 7	14	3.57
79 80	17 7	24	6.12
81 82	8 16	24	6.12
83 84	9 15	24	6.12
85 86	19 22	41	10.46
87 88	16 15	31	7.91
89 90	4 24	28	7.14
Carried Forward			

1. Two ranges together.

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Nasal Index	N	N	%
Brought Forward			
91	5	29	7.40
92	24		
93	9	15	3.83
94	6		
95	16	17	4.34
96	1		
97	21	21	5.36
98	...		
99	...	30	7.65
100	30		
101	...	19	4.85
102	19		
103	...	1	0.25
104	1		
105	15	15	3.83
106	...		
107	1	6	1.53
108	3		
109	1	4	1.04
110	3		
111	1	1	0.25
112	...		
113	2	2	0.51
114	...		
115	...	...	...
116	...		
117	1	2	0.51
118	1		
	392	392	100.00

FIGURE IV. *See Page 34.*

The peculiar character of the curve is due not only to the variability of this index, but also to the arithmetical results of calculation of these indices. In fact, the division of the breadth of the nose between 29 and 47 mm on the length between 34 and 51 mm does not give the index of 98, 99, 101, 103 and so on.

Some nasal indices pass beyond the limits of variation known up to the present time. The variability of these indices among the Manchus is much more moderate. The standard deviations and coefficients of variation are higher than in any other measurements. This evidence leads me to suppose that the present population of this area is composed of different types (from the point of view of nasal index) some of which are close to the limits of the possible variations of this measurement. At the same time it might be supposed that the type having very high nasal index is characteristically particular for the Koreans and Chinese of Shantung. Furthermore, the variations of MM differ greatly among the groups The differences between MM of the Manchus and Koreans is 9.42 and MM of the Chinese groups lie within these limits.

MM of the nasal index of other ethnical groups of this area show some interesting distinctions, as seen from the Table XXXIV.

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FIGURE IV.

NASAL INDEX.

(One range—two units).

Percentage of Dispersion.

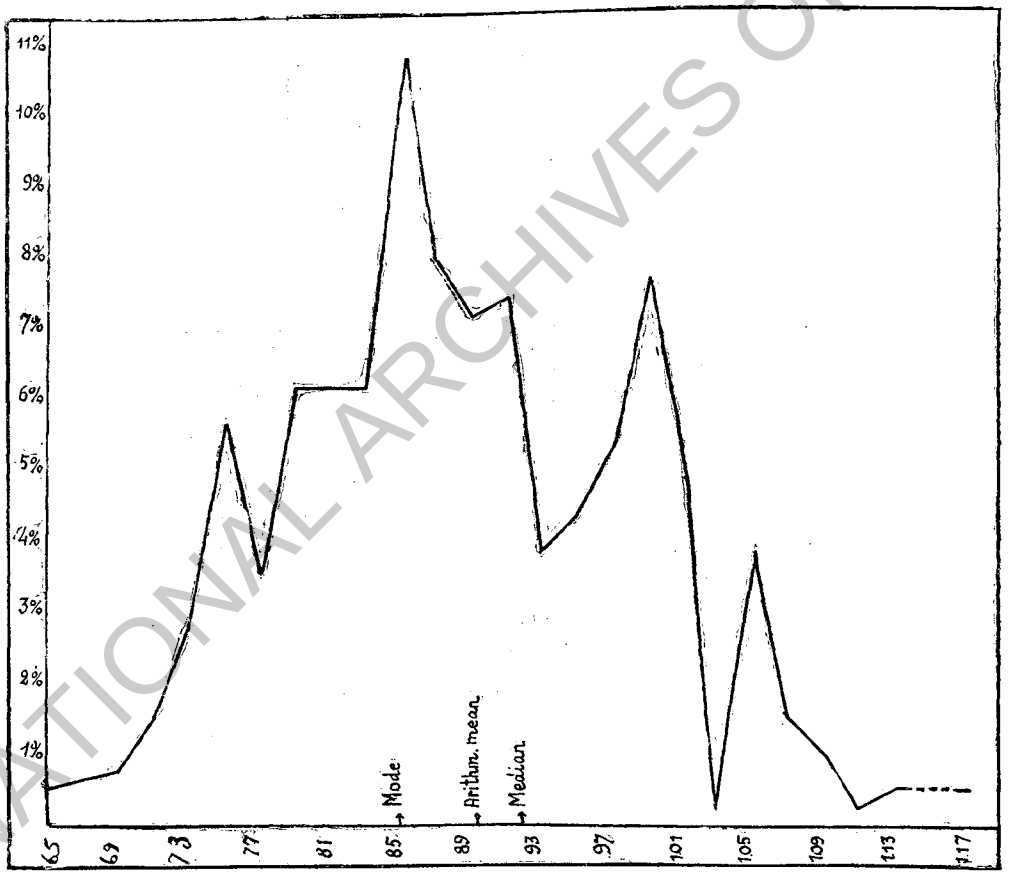

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TABLE XXXIV.

Groups	Max.	Min.	M	σ	V
Tungus of Ugulga ...	90.70	64.00	79.32	6.96	8.77
Tungus of Barguzin ...	104.65	71.15	86.70	9.13	10.54
Dahurs	111.43	68.75	85.31	...	...

MM of these groups are lower that MM of the Chinese, but the variability of this measurement among the Tungus of Barguzin is as high as among the Chinese. Some evidences concerning the Mongols, who have relatively low nasal index, can explain the M of the nasal index of the Tungus of Urulga (Mongolized Tungus) and their relatively low Maximum (90.70), whereas M of the Coreans higher still (92.49). From this it may be concluded that the influence of the type with characteristically high nasal index over the Tungus is weak and practically absent over the Tungus of Urulga.

§29. Auricular Index.

TABLE XXXV.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	133	60.00	41.43	51.02
Chinese of Chihli ...	113	61.67	41.43	50.34
Chinese of Manchuria ...	96	61.90	42.31	51.64
Total Chinese	392	61.90	41.43	50.97
Manchus	81	61.67	39.73	51.32
Koreans	141	62.50	37.84	48.26

In this table MM show very insignificant differences. M of the Chinese of Manchuria is the highest and very close to M of the Manchus. The lack of evidence from other groups but the Dahurs (M=50.15) prevents comparison. The comparative amplitude of individual variations of this index among the Koreans is worthy of note.

§30. Some Notes on the Colour of the Skin, Eyes, and Hair and Some Other Physical Peculiarities.

I did not need to note the colour of the eyes among the Chinese and Koreans because of the relative homogeneity. The eyes are always dark except for a few cases that indicated Tungus influence. Registration of the colour of hair was practically impossible because the Chinese generally shave the face and very often the head also. In the cases when observation was possible I have noted some cases of light colour of the beard and dark colour of the hair, while black hair is, it seems to me, more characteristic for Chinese and Koreans. As regards the colour of skin, I could not classify it because I had no scale at the time of my investigations. Some remarks which I shall give below, are based on subjects not measured, but my observations during the measurements do

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not differ from the observations made later with the scale of skin colour.[1] The colour of skin on the body is generally lighter than that of the face and parts of body influenced by the air and sunlight. The natural colour is very often changed, because of the use of opium and morphine turning the skin to a yellowish and greenish shade. The general opinion on the yellow colour of the "yellow race" I cannot confirm by my personal observations. The colour of the skin varies from light brown, just like the skin colour of the population of Southern Europe, to light pinkish so characteristic for the population of Siberia as well as for the "white race" of Northern Europe. Light colour is not so common among the working people but the rich people of Peking, Mukden and so on are so characteristically "white," that the assertion of the "yellow race" must be rejected More than that, light brown skin colour is not observable among the Tungus, who are classified as of the "yellow race." The skin colour of the Korean is generally lighter than that of the Chinese.

The Chinese have no hair on the body and have very poor beards, though they have peculiar veneration for them. The Koreans have commonly beards of moderate development and sometimes the breast, arm and legs are also covered with long hair. It seems to me, that this peculiarity is more common among the Northern Koreans.[2] The colour of the hair of the Chinese of Manchuria is not so black; this might be explained by the influence of the Manchus among whom brown hair is very common. This phenomenon can by explained by the influence of the Tungus. Black hair can very seldom be observed among the Tungus. Among them, however, light brown and gray eyes are very common.

TABLE XXXVI.

Groups	Mong. eye	Absence of ear-lap	Forms of the nose				Tuberculus		Pentagonal form of scull.
			Straight	Aquiline	Concave	Flat[3]	Darwin.	Satyr.	
	%	%	%	%	%	%	N	N	N
Chinese of Shantung ...	11	37	40	21	39	30	1	...	3
Chinese of Chihli ...	21	33	29	33	38	34	2	...	2
Chinese of Manchuria..	16	30	34	36	30	34	...	..	3
Manchus ..	18	16	43	27	30	22	...	...	...
Koreans[4] ...	2	28	...	...	...	...	...	...	9

Considering this table to be clear enough I will abstain from unnecessary description of it. It must be noted that absence of the ear-lap is evidently more characteristic for the Chinese. The so called "Mongolian eye" (I have noted only very developed cases) is not characteristic for the Koreans, but it is more common among the Chinese of Chihli. This phenomenon is quite understandable because of the close vicinity of the

1. Scale of skin colour Prof. Luschan's made by Wanger.
2. This is characteristic for the Aino of the Sakhalien and Yeso Islands, also for some Gilyaks of the Amurland and Sahalien Island.
3. The percentage is taken from all forms of the nose (straight, aquiline and concuve).
4. The forms of the nose and tuberculi are not registered.

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Mongols. The tuberculi Darwinii and Satyri are very rare. There must be also noted the very interesting pentagonal form of the skull. This form was observed among the Gilyaks, Eskimos and prehistoric skulls of Cro-Magnon type, also among the Mongols, living in the vicinity of Lake Baikal. This form is more common among the Koreans than among the Chinese. I have not yet measured the Chinese from Southern China, but I can say that this form is very common among the Chinese seen in Shanghai, meanwhile this form is exceptional in Northern China, only 2%. I think that the observation of this form and the study of the geographical distribution of it in Asia may be very fruitful for further deductions, There is another peculiarity, which can be especially noted. In the series of the Chinese that have been measured I have observed two cases of very peculiar prominence of the os occipitalis. Such a development of this prominence seemed to me to be of traumatic origin and I have not measured these individuals. My observations on the Southern Chinese in Shanghai have shown that among these populations this is a very characteristical and common peculiarity, which, I think can be connected with some anthropological group, probably of non-Chinese origin.

§31. Conclusions.

From the examination of the present chapter the following generalizations might be drawn.

1. The general conclusions concerning the absolute measurements can be applied to the relative measurements.

2. All relative measurements of the limbs and trunk show very moderate variability of MM and limited amplitude of the individual data.

3. The greatest part of the indices shows more intense variations of MM and large amplitude of the variations of the individual measurements.

4. The Koreans show that they are an amalgamated group. The influence of different anthropological types over the Chinese studied varies in different degree according to the general characteristics of these groups. Some influence of the local population over the Chinese of Manchuria can be discovered. At the same time the ethnical groups of Manchuria and their neighbours in Mongolia and Siberia are not homogenous, for they are amalgamated as are the Chinese themselves.

In the following chapters I shall try to discern some conclusion as to components of this amalgamated population ; to show their present distribution on the territory ; and to indicate the probable connection with certain ethnoses of this part of Asia. Further conclusions of the preceding exposition I shall give in the following chapters.

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1. The Koreans do not shave their heads, and this form could not be observed so easily, as among the Chinese, who shave the head, so that the observation of the head forms on the Chinese is very easy.

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CHAPTER III

COMPARISON OF THE CHINESE GROUPS BY THE METHOD OF THE INTESERIAL DIFFERENCES.

§32. *Description of the method.*

I. Absolute Measurements. §33. *Graphic expression of the interserial differences.* §34. *Coefficients of interserial differences related to MM of Total Chinese.* §35. *Differences between the groups.* §36. *General deductions from the preceding exposition.*

II. Relative Measurements. §37. *Graphic expression of the differences.* §38. *Coefficients related to MM of Total Chinese.* §39. *Differences between the groups.* §40. *General conclusions.*

In the preceding chapter I gave a summary description of the different characteristics of the series and I concluded that the Chinese are not homogeneous. The Chinese of Manchuria in many characteristics are very close in their MM to these of the anthropological environment. In the present chapter I shall analyse the significance of the differences of MM and the relations between the groups.

§32. Description of the Method.

I have applied for this purpose the method of interserial differences that consists of the following calculation. I have worked out the relative values of the differences between MM of all measurements and groups according to the following formula:

$\delta = \frac{M_1 - M_2}{L} .100$, where δ is a relative difference expressed in percent; M_1 and M_2 are the arithmetical means of some measurement of the groups taken in comparison; L is the difference between the Maximum and Minimum of this measurement among the Chinese, i.e., Max.—Min. = L. I prefer to take the relative differences, because the absolute differences in some measurements may be very great and in others very insignificant, as for example, the stature and length of the ear.[1] All these data I put into a graph (See Figure V.) On this drawing the Maximums of all measurements lie in the upper part of the drawing and the Minimums in the lower, but the lines corresponding to Maximums and Minimums are not drawn. The middle line corresponds to MM of all measurements, relatively to which I put on the graph the points corresponding to the differences percent and join them with straight lines. Thus on the graph every group is represented by a crooked line, sometimes above the middle line of MM, some times below it.[2] The absolute and relative measurement are recorded to two charts.

---

1. Dr. Molison, Dr. Fischer (Die Rehoboter Bastard. Iena 1913.) and Prof. Czekanowsky take the absolute measurements.

2. If the differences between MM and medians are not very great the data can be put on the graph relative to the medians of all measurements. In the present case the differences between MM and medians are very high, as may be seen from Table XXXVI and Appendix Table IV. Therefore the relative position of the crooked lines would be confused, if I arranged them relative to the medians taken as a basis.

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Finally I have calculated the coefficients of interserial differences according the formula: $\Delta = \frac{1}{N}\sum_{1}^{n}\delta$. Where Δ is coefficient, N is number of measurements and $\sum_{1}^{n}\delta$ is the sum of deviations of differences of MM of the measurements (from 1 to n). Thus the coefficient of interserial differences characterizes the degree of differences between two series represented by MM. The Tables of the Coefficients were arranged to show the relationship of groups.

I. ABSOLUTE MEASUREMENTS.

FIGURE V. *See Page 40.*

§33. Graphic Expression of the Differences.

On Figure V can be observed the disposition of the crooked lines representing the Chinese of Shantung, Chihli and Manchuria and the Manchus. The points corresponding to the relative places of MM of the Koreans are marked only by small circles and not joined together. At a glance it may be seen that the Shantung line is very close[1] to the middle line corresponding to Total Chinese series. Two of its deviations, namely the cases of the head-breadth and head-length are due to high M of the Chinese of Manchuria, in the first case, and to low M of the same group in the second one. The Chihli line is not so close to the middle line and its deviations in the case of stature, length of the leg and nterzygomatic breadth are due to the significant deviations of the line of the Chinese of Manchuria. Such a position of the line relative to the line of Total Chinese is natural, because these series compose the Total Chinese.

In most cases the line of Shantung is closer to the line of Chihli than to that of Manchuria. This last is generally opposed to that of other Chinese groups. In fact, in 21 measurements out of 25, it is opposed, and in four measurements only, namely, the breadth of the nose, the length of the upperarm, the length of the trunk and the external interocular breadth, the line of Manchuria lies between the lines of Shantung and Chihli and is closer to middle line. Hence it might be supposed that this group is composed of some anthropological elements different from the Chinese of China Proper.

How can we explain this phenomenon? The line of the Manchus furnishes some explanation. In fact, the line of the Chinese of Manchuria seems to be traversed above and below by the line of the Manchus. In 17 measurements the line of the Manchus is separated from the Chinese lines by the line of the Chinese of Manchuria and in 5 instances only it is opposed to this line, viz, the length of the ear, breadth of the nose, interzygomatic breadth, length of the trunk and external interocular breadth. However, some explanation of these variations I have given in the preceding chapter.

In order to show the influence of the Manchus over the Chinese of Manchuria I have shaded the distance between the lines of these groups and between the other two groups. It is clear that the Chinese field in the greatest number of cases is separated from the other field.

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1. This phenomenon can be explained, of course, by that fact that the series of the Chinese of hantung included in the series of Total Chinese is more numerous than other series.

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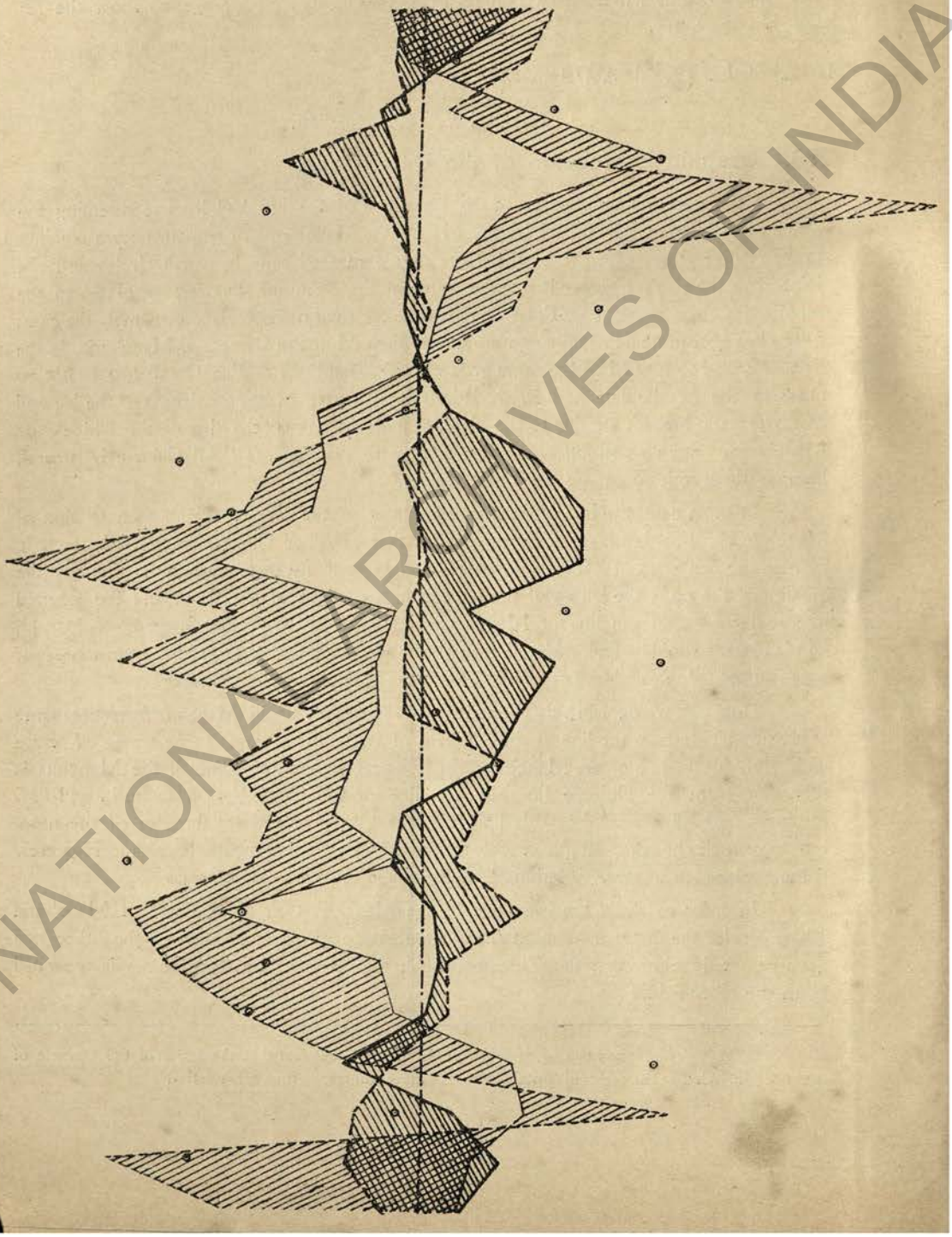
FIGURE V.

ABSOLUTE MEASUREMENTS.

———	Chinese of Chihli.	— — — —	Manchus.
— — — —	Chinese of Shantung.	o o	Koreans.
———	Chinese of Manchuria.	—· —	Total Chinese.

Note. One millimeter = 0.16% of relative deviation.



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It might also be noted that in many cases the Koreans are very close to the line of the Chinese of Manchuria and the deviations from it can be easily explained by Korean influence. Though the line (imaginary) of the Koreans in some cases crosses the Chinese and Manchurian fields, it is always closer to the Chinese of Manchuria than to the lines of the Chinese of China Proper.

Thus, the lines of the Chinese of China Proper lie at different distances from the middle line, though the Shantung line is closer. They are therefore more characteristic of the present Total Chinese series. The Chihli line is closer to the Shantung line and middle line. The line of the Chinese of Manchuria is opposed to the lines of the Chinese of China Proper. This might be explained by the influence of the Manchus and Koreans over the Chinese of Manchuria.

§34. Coefficients of Interserial Differences Related to MM of Total Chinese.

TABLE XXXVII.

Measurement	Chinese of				Mn	K	μ	Max.	Min.	L	100/L
	Total	S	C	Cm							
1. Length of ear	− 3.94	− 0.97	− 2.64	− 1.31	+ 3.75	− 0.04	65	78	52	26	3.861
2. Breadth of nose ...	− 4.78	− 0.11	+ 0.94	− 0.67	+ 4.00	+ 1.06	38	47	29	18	5.555
3. Frontal diameter ...	− 2.02	− 0.56	− 1.74	+ 3.07	+ 1.05	+ 4.96	105.5	119	92	27	3.704
4. Head-breadth	− 8.43	− 5.34	− 0.97	+ 9.03	+ 5.03	+ 9.06	152.5	170	135	35	2.857
5. Length of nose	− 4.12	− 1.41	− 0.59	+ 3.41	+ 20.11	− 6.00	42.5	51	34	17	5.882
6. Breadth of ear ...	− 7.34	− 0.33	− 0.39	+ 1.47	+ 4.63	− 13.98	33.5	40	27	13	7.722
7. Gonial breadth ...	− 0.58	+ 0.39	− 0.45	+ 0.77	+ 3.71	+ 6.97	195.5	125	94	31	3.226
8. Anat. L. of face ...	+ 3.43	− 0.14	+ 0.03	+ 0.22	− 0.27	− 1.65	116.5	135	98	37	2.703
9. Int. interoc. breadth	+ 4.14	+ 1.24	+ 1.24	+ 3.97	− 0.13	− 0.53	35.5	41	26	15	6.666
10. Height of knee-joint	− 3.48	− 0.77	+ 3.55	− 3.68	− 5.68	− 9.42	470.5	548	393	155	0.645
11. Stature	− 6.76	− 0.05	+ 6.32	− 4.17	− 6.76	− 7.33	1690.5	1874	1507	367	0.272
12. Length of leg	− 7.44	+ 0.30	+ 6.32	− 8.05	− 16.24	− 25.64	863.5	980	747	133	0.752
13. Phys. L. of face ...	− 4.20	− 0.52	+ 1.72	− 0.98	− 7.22	+ 5.54	194	219	169	50	2.000
14. Height of forehead...	− 3.43	− 0.66	+ 5.11	− 1.77	− 11.80	+ 9.17	75.5	93	58	35	2.857
15. Height of head	− 4.05	− 0.70	+ 2.65	− 1.85	− 4.25	+ 0.30	136	156	116	40	2.500
16. Length of thigh. ...	− 2.77	+ 1.10	+ 0.55	− 2.77	− 7.51	− 5.24	393.5	484	303	181	0.552
17. Length of hand. ...	− 14.41	+ 2.16	− 0.78	− 3.72	− 5.78	− 3.62	202	253	151	102	0.980
18. Length of upperarm.	− 16.58	+ 1.16	− 1.32	− 0.70	− 6.59	− 11.40	330.5	395	266	129	0.775
19. Head-length	+ 6.50	+ 3.67	+ 0.40	− 7.52	− 11.40	− 6.67	184	205	163	42	2.381
20. Length of arm... ...	− 1.70	+ 0.85	+ 0.58	− 1.75	− 9.86	− 5.96	732.5	844	621	223	0.448
21. Length of forearm ...	+ 8.94	+ 0.95	− 0.14	− 1.22	− 6.91	− 6.62	229.5	267	192	75	1.354
22. Interz. breadth	+ 3.63	− 1.07	− 3.20	+ 3.50	− 2.70	+ 8.90	140	155	125	30	3.333
23. Ocular length	+ 0.59	− 2.61	+ 1.13	+ 3.91	+ 9.66	− 1.04	30.75	36.5	25	11.5	8.700
24. Length of trunk. ...	− 1.10	− 2.87	+ 2.87	+ 2.13	− 12.75	− 9.03	570	652	488	164	0.610
25. Ext. interoc. breadth	+ 5.95	− 1.50	+ 1.50	+ 1.37	− 7.84	− 1.44	94	108	80	28	3.500
All positive deviations		11.82	37.69	28.88	51.94	45.69					
All negative deviations...		19.61	9.44	44.13	123.69	115.61					
All deviations...		31.33	47.13	73.01	175.63	161.57					
Coefficients		1.253	1.885	2.920	7.025	6.463					

Note on the Table.

The deviations of column I are worked out by subtraction of M from μ. The deviations of II, III, IV, V and VI columns are calculated relatively to MM.

Abbreviations: S—Shantung, C—Chihli, Cm—Chinese of Manchuria, Mn—Manchus, K—Koreans; μ—median; Max. and Min.—Maximum and Minimum; L=Max.—Min.

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The table of differences and coefficients gives exact expression to the relations that were observed in the preceding §33. In this table the differences are worked out as the differences of MM of all groups from MM of Total Chinese series. The numerical expression of these differences represented by the coefficients confirms the above deductions. The coefficients placed in the order of their increase show the degree of connection which exists between the groups. The closest to MM of Total Chinese is the groups of Shantung ($\Delta = 1.253$); thereafter the group of Chihli ($\Delta = 1.885$) and the group of Chinese of Manchuria ($\Delta = 2.920$). The Koreans ($\Delta = 6.463$) and the Manchus ($\Delta = 7.025$) have significantly high coefficients.

§35. Differences Between the Groups.

The most striking evidence of the degree of differences is furnished by the table below:

TABLE XXXVIII.

Measurements	Chinese of Shantung				Chinese of Chihli			Chin. of Man.		Manchus
	C	Cm	Mn	K	Cm	Mn	K	Mn	K	K
1. Length of ear	+ 3.61	− 0.34	+ 3.72	− 0.93	+ 3.95	+ 1.11	− 2.68	+ 5.06	+ 1.27	− 3.79
2. Breadth of nose ...	+ 1.05	− 0.56	+ 4.11	+ 1.17	− 1.61	+ 3.06	+ 0.08	+ 4.67	+ 1.73	− 2.94
3. Frontal diameter. ...	− 1.18	+ 3.63	+ 1.61	+ 5.52	− 4.87	+ 2.79	+ 6.70	− 2.02	+ 1.89	+ 3.91
4. Head-breadth	+ 4.37	+14.37	+10.37	+14.40	+10.00	+ 6.00	+10.03	− 4.00	+ 0.03	+ 4.03
5. Length of nose ...	+ 0.82	+ 4.82	+21.52	− 4.59	+ 4.00	+20.70	− 5.41	+16.70	−26.19	−26.11
6. Breadth of ear ...	− 0.06	+ 1.80	+ 4.96	−14.31	+ 1.86	+ 5.02	−14.37	+ 3.16	−15.45	−18.61
7. Gonial breadth ...	− 0.84	+ 0.38	+ 3.32	+ 6.58	+ 1.22	− 4.16	+ 7.42	+ 2.94	+ 6.20	+ 3.28
8. Anat. length of face.	+ 0.17	+ 0.36	− 0.13	− 1.51	+ 0.19	− 0.30	− 1.68	− 0.49	− 1.87	1.38
9. Int. interoc. breadth	0.00	− 5.21	1.37	− 1.77	− 5.21	− 1.37	− 1.77	+ 3.84	+ 3.44	− 6.40
10. Height of kneejoint..	+ 4.32	− 2.91	− 4.91	− 8.65	− 7.23	− 9.23	−12.97	− 2.00	− 5.74	− 3.74
11. Stature	+ 6.37	− 4.12	− 6.71	− 7.12	−10.49	−13.08	−13.65	− 2.59	− 3.16	− 0.57
12. Length of leg	+ 6.02	− 8.35	−16.54	−25.94	−14.37	−22.56	−31.96	− 8.19	−17.59	− 9.40
13. Phys. length of face.	+ 2.24	− 0.46	− 6.70	+ 6.06	− 2.70	− 8.94	+ 3.82	− 6.24	+ 6.52	+12.76
14. Height of forehead..	+ 5.77	− 1.11	−11.14	+ 9.83	− 6.88	−16.91	+ 4.06	−10.03	+ 7.40	+20.97
15. Height of head. ...	+ 3.35	− 1.15	− 3.55	+ 1.00	− 4.50	− 6.90	− 2.35	− 2.40	+ 2.15	+ 4.55
16. Length of thigh ...	− 0.55	− 3.87	− 8.61	− 6.34	− 3.32	− 8.04	− 5.79	− 4.74	− 2.47	+ 2.27
17. Length of hand. ...	− 2.94	− 5.88	− 7.94	− 5.78	− 2.94	− 5.00	− 2.84	− 2.06	− 0.10	− 2.16
18. Length of upperarm	− 2.48	− 1.86	− 7.75	−12.56	+ 0.62	− 5.27	−10.08	− 5.89	−10.70	− 4.81
19. Head-length	− 3.27	−11.19	−15.07	−10.34	− 7.92	−11.80	− 7.07	− 3.88	+ 0.85	+ 4.73
20. Length of arm.. ...	− 0.27	− 2.60	−10.71	− 6.81	− 2.33	−10.44	− 6.56	− 8.11	− 4.21	+ 3.90
21. Length of forearm ...	− 0.87	− 2.17	− 7.86	− 7.57	− 1.36	− 7.05	− 6.76	− 5.69	+ 5.40	+ 0.29
22. Interzyg. breadth ...	− 2.13	+ 4.57	− 1.63	+ 9.97	+ 6.70	+ 0.50	+12.10	− 6.20	+ 5.40	+11.60
23. Ocular length... ...	+ 3.94	+ 6.52	+12.27	+ 1.57	+ 2.78	+ 8.53	− 2.17	+ 5.75	− 4.95	+10.70
24. Length of trunk ...	+ 5.74	+ 5.00	− 9.88	− 6.16	− 0.74	−15.62	−11.90	−14.88	−11.16	+ 3.72
25. Ext. interoc. breadth	+ 3.00	+ 2.87	− 6.34	+ 0.06	− 0.13	− 9.34	− 2.94	− 9.21	− 2.81	+ 6.40
All Posit. deviations ...	50.57	44.32	61.88	57.09	36.13	51.87	44.21	42.12	36.98	84.57
All negat. deviations ...	14.53	51.78	126.84	119.45	71.73	151.84	142.95	98.62	88.10	88.45
All deviations	65.10	96.10	188.72	176.54	107.86	203.71	187.16	140.74	125.08	151.84
Coefficients	2.604	3.844	7.549	7.062	4.306	8.148	7.486	5.630	5.003	6.921

Note on the Table.

For example, M of the length of the ear of the Chinese of Shantung differs from M of the Chinese of Manchuria by—0.34. For abbreviations see Table XXXVI.

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1. Coefficients Related to MM of the Chinese of Shantung.

In this table can be seen the preponderance of the negative differences for the Chinese of Manchuria, Manchus and Koreans as well as the positive preponderance for the Chinese of Chihli. Per cent the positive deviations will be as follows: the Chinese of Chihli—78%, the Chinese of Manchuria—46%, the Manchus—33%, the Koreans—32%. These figures illustrate the conclusion of the preceding chapter, where I have formulated the proposition that the proportions of the physical characters of the Manchus are generally smaller. This generalization can be now at this point applied to the Koreans and Chinese of Manchuria.

The coefficients of interserial differences have the same type of variations as was observed in Table XXXVII, but the differences are a little higher. The lowest difference is between the Chinese of Shantung and Chihli groups ($\Delta = 2.604$), next to which one gets the coefficient of differences between the Chinese of Shantung and of Manchuria ($\Delta = 3.844$). At the same time the coefficients of differences of the Manchus and Koreans ($\Delta = 7.062$) are two times higher than that of the Chinese groups.

2. Coefficient Related to MM of the Chinese of Chihli.

In these columns it may be observed that the coefficients are generally higher than in the preceding. The Chinese of Chihli are more differentiated from other groups than the Chinese of Shantung. The highest coefficient belongs to the Manchus ($\Delta = 8.148$). The Koreans are likewise significantly differentiated from the Chinese of Chihli ($\Delta = 7.486$). It is clear that the positive deviations are smaller than in the preceding case, i.e. the Chinese of Shantung—22%, the Chinese of Manchuria—34%, the Manchus—25% and the Koreans—24%. Also, the preponderance of the positive deviations is characteristic for the Chinese of Chihli.

3. Coefficients Related to MM of the Chinese of Manchuria.

In the preceding cases the preponderance of the negative deviations was seen to be significant. In this table the Chinese of Manchuria occupy the middle place, as follows: negative deviations of the Chinese of Shantung—54%, of Chihli—66%, of the Manchus—30%, of the Koreans—29%.

It is very characteristic that this group is by its coefficients very close to the Manchus and Koreans and it occupies an intermediate position among other groups. This is clear from the following comparison;

Coefficient of differences of Chinese of Shantung—3.844.
" " " " " " Chihli—4.306.
" " " " " " Manchus—5.630.
" " " " " " Koreans —5.003.

Hence it might be seen that the Chinese of Manchuria are closer to the Chinese of China Proper than the other ethnical groups of this area, but at the same time the Chinese of Manchuria are always closer to their neighbours than are other Chinese groups.

4. Coefficients Related to MM of the Manchus.

In the preceding the coefficients were related to the Chinese groups. It remains now to show only the coefficients of differences between the Manchus and Koreans.

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This coefficient is much higher than for the Chinese of Manchuria, whence it might be supposed that the Koreans are closer to the Chinese of Manchuria than to the Manchus. There is no preponderance of either the negative or positive deviations.

§36. General Deductions from the Preceding Exposition.

TABLE XXXIX.

Coefficients of Interserial Differences.

	M	S	C	Cm	Mn	K
M	0	1.253	1.885	2.920	7.025	6.463
S	1.253	0	2.604	3.844	7.549	7.062
C	1.885	2.604	0	4.306	8.148	7.486
Cm	2.920	3.844	4.306	0	5.630	5.003
Mn	7.025	7.549	8.148	5.630	0	6.920
K	6.463	7.062	7.486	5.003	6.920	0

Abbreviations: M—Total Chinese; S—Shantung group; C—Chihli group; Cm—Chinese of Manchuria; Mn—Manchus; K—Koreans.

The following deductions can be drawn from the preceding §: as to absolute measurements,—

I. The Chinese are not homogeneous and must be divided into two main groups: the Chinese of China Proper and the Chinese of Manchuria.

2. The Chinese of Manchuria are probably influenced by the Manchus and Koreans, from whom they do not differ so significantly as from other Chinese groups.

3. The differences between the Chinese of Manchuria and the Koreans is less than that between the Chinese of Manchuria and the Manchus.

4. The difference between the Koreans and other Chinese groups is almost equal to the difference between the Koreans and Manchus.

5. The Chinese of China Proper show some variations among themselves and differ from the Manchus more significantly than from the Koreans.

II. RELATIVE MEASUREMENTS.

FIGURE VI. *See Page 45.*

§37. Graphic Expression of the Differences.

On this figure the crooked lines represent the same groups as in the Figure V. At a glance it can be seen that the disposition of the lines shows the same regularity as in the case of the absolute measurements.

The crooked line of Chihli in this case is closer to the middle line of Total Chinese. In the Figure V the line of Shantung is closer to the middle line, but the distances between them are more significant. The deviations in the case of the relative length of the trunk, cephalic index, relative height of the head on head-length and head-breadth are due to the deviations of the line of the Chinese of Manchuria. To the same cause are due the deviations of the line of the Chinese of Chihli in the cases of the auricular index and relative

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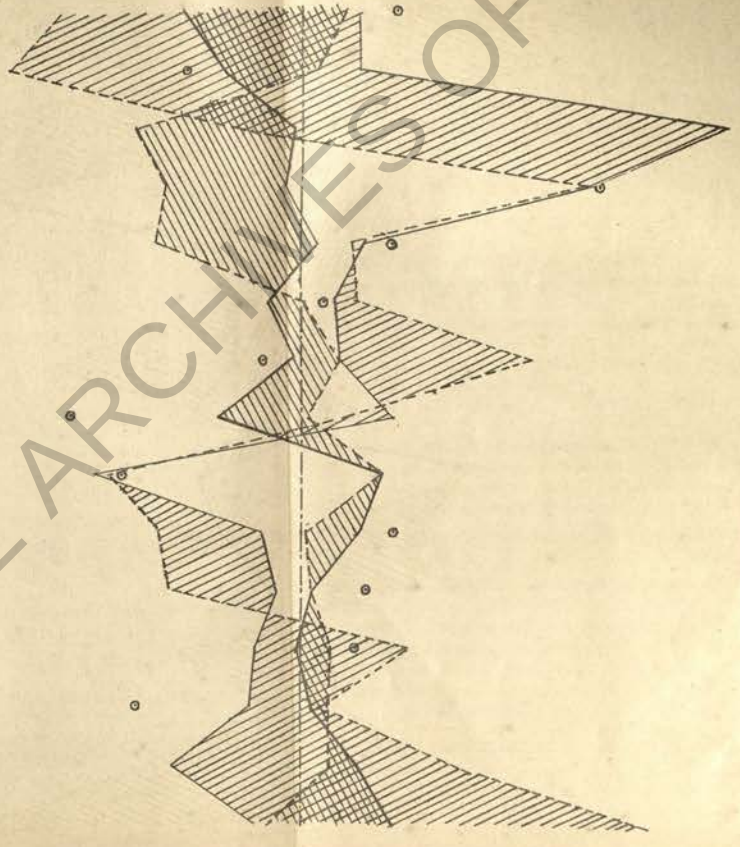
FIGURE VI.

RELATIVE MEASUREMENTS.

———	Chinese of Chihli.	– – – –	Manchus.
– – – –	Chinese of Shantung.	o o	Koreans.
———	Chinese of Manchuria.	— —	Total Chinese.

Note. One millimeter=0.25% of relative deviation.



Arm length

Upperarm length

Trunk length

Cephalic index

Head height by length

I Facial index (physiognom.)

Forearm length

Auricular index

Height head by breadth

Frontal index

Nasal index

Gomal index

II Facial index (anatom.)

Leg length

Hand length

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This coefficient is much higher than for the Chinese of Manchuria, whence it might be supposed that the Koreans are closer to the Chinese of Manchuria than to the Manchus. There is no preponderance of either the negative or positive deviations.

§36. General Deductions from the Preceding Exposition.

TABLE XXXIX.

Coefficients of Interserial Differences.

	M	S	C	Cm	Mn	K
M	0	1.253	1.885	2.920	7.025	6.463
S	1.253	0	2.604	3.844	7.549	7.062
C	1.885	2.604	0	4.306	8.148	7.486
Cm	2.920	3.844	4.306	0	5.630	5.003
Mn	7.025	7.549	8.148	5.630	0	6.920
K	6.463	7.062	7.486	5.003	6.920	0

Abbreviations: M—Total Chinese; S—Shantung group; C—Chihli group; Cm—Chinese of Manchuria; Mn—Manchus; K—Koreans.

The following deductions can be drawn from the preceding §: as to absolute measurements,—

I. The Chinese are not homogeneous and must be divided into two main groups: the Chinese of China Proper and the Chinese of Manchuria.

2. The Chinese of Manchuria are probably influenced by the Manchus and Koreans, from whom they do not differ so significantly as from other Chinese groups.

3. The differences between the Chinese of Manchuria and the Koreans is less than that between the Chinese of Manchuria and the Manchus.

4. The difference between the Koreans and other Chinese groups is almost equal to the difference between the Koreans and Manchus.

5. The Chinese of China Proper show some variations among themselves and differ from the Manchus more significantly than from the Koreans.

II. RELATIVE MEASUREMENTS.

FIGURE VI. *See Page 45.*

§37. Graphic Expression of the Differences.

On this figure the crooked lines represent the same groups as in the Figure V. At a glance it can be seen that the disposition of the lines shows the same regularity as in the case of the absolute measurements.

The crooked line of Chihli in this case is closer to the middle line of Total Chinese. In the Figure V the line of Shantung is closer to the middle line, but the distances between them are more significant. The deviations in the case of the relative length of the trunk, cephalic index, relative height of the head on head-length and head-breadth are due to the deviations of the line of the Chinese of Manchuria. To the same cause are due the deviations of the line of the Chinese of Chihli in the cases of the auricular index and relative

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height of the head on the head-length and head-breadth. In the great number of cases the line of Shantung is closer to the line of Chihli than to that of the Chinese of Manchuria. Also the line of Chihli is closer to the line of Shantung than to that of the Chinese of Manchuria.

The line of Shantung in 10 cases is opposed to the line of the Chinese of Manchuria and the line of Chihli is in 13 cases opposed to it. In all the cases the line of the Chinese of Manchuria is opposed to one of the lines of China Proper groups, whence may be drawn the same conclusion as in §32, namely, that the group of the Chinese of Manchuria is composed of other anthropological elements than is the case with the Chinese of China Proper.

The explanation of this phenomenon can be illustrated by the disposition on the field of the lines of the Manchus and Koreans (the last one is not drawn and the relative places of MM are marked by circles). In fact, the line of the Chinese of Manchuria only in four cases out of 15 is opposed to the line of the Manchus (and Koreans): in 2 cases the disposition of it can be easily explained by the influence of their neighbours. Some original characters are shown by the Chinese of Manchuria in the relative length of the upperarm and trunk, also the gonial index, which are relatively higher than those of other groups. The differences between MM of the Chinese of Shantung and Manchuria in the case of the length of the upperarm and of the hand are very insignificant and do not go over 0.90 The relative length of the trunk shows some peculiar character among the Chinese of Manchuria, which can be explained by the influence of the Koreans, who have a very short leg. As regards the gonial index, it must be remembered that the absolute gonial breadth does not very significantly among the groups, but the interzygomatic breadth correlating with the head-breadth,as was stated before, was probably influenced by the Koreans and Manchus. Therefore the gonial index shows the above-mentioned peculiarity among the Chinese of Manchuria.

The lines of Chinese groups thus lie at different distances relative the middle line of MM of Total Chinese series. The Chihli line is closer to this than others; so this group must be considereda s more characteristic for the Chinese of this area. The lines of Shantung and Chihli together are opposed to the line of the Chinese of Manchuria. This phenomenon can be explained by the influence of the Manchus and Koreans over this Chinese group. Thus the above conclusions do not differ significantly from those of §33.

§38. Coefficients Related to MM of Total Chinese Series.

The conclusions of the preceding section can be confirmed by these data (See Table XL page 47). If the coefficients are placed in the order of their increase there may be seen the degree of connection between the groups. The closest to Total Chinese are the Chinese of Chihli with their low coefficient of differences ($\Delta=1.421$), next are the Chinese of Shantung ($\Delta=1.679$) and Chinese of Manchuria, the coefficient of which ($\Delta=3.621$) is a little higher than in the case of the absolute measurements, but the coefficients of the Manchus ($\Delta=5.365$) and Koreans ($\Delta=5.052$) are lower.

I shall omit the comparison of the positive and negative deviations because these differences are related to the relative measurements. For example the positive deviation of the physiognomical facial index correlates, of course, with the negative deviations of the anatomical facial index and so on.

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TABLE XL.

Indices	Chinese Total	S	C	Cm	Mn	K	μ	Max.	Min.	L	100/L
1. Length of arm ...	− 5.25	+0.76	−2.19	+ 1.05	− 4.48	+ 1.81	44.30	49.54	39.06	10.48	9.542
2. Length of upperarm.	− 7.38	+0.27	−1.53	+ 1.17	− 5.76	− 2.25	43.08	48.64	37.53	11.11	9.000
3. Length of trunk ...	+ 5.89	−2.94	−0.10	+ 7.38	− 2.84	− 1.42	33.54	38.47	28.62	9.85	10.152
4. Cephalic	−12.56	−6.39	−0.92	+13.35	+12.89	+13.54	83.43	96.43	70.44	25.99	3.848
5. I height head	− 4.20	−5.73	+0.55	+ 2.40	+ 2.08	+ 3.46	73.32	84.15	62.50	21.65	4.619
6. Phys. facial	+10.33	−0.32	−1.71	+ 1.93	+ 3.22	+ 1.30	70.28	86.11	54.45	31.66	3.159
7. Length of forearm...	+16.63	+0.56	−0.12	+ 0.56	+ 3.51	− 0.68	30.90	35.32	26.48	8.84	11.312
8. Auricular	− 3.37	+0.24	−3.08	+ 3.27	+ 1.71	− 8.55	51.66	61.90	41.43	20.47	4.885
9. II height head... ...	+ 2.20	+3.36	+3.32	−10.29	− 9.10	− 8.77	89.33	102.74	75.93	26.81	3.730
10. Frontal	+ 2.98	+0.40	+3.63	− 2.26	− 9.41	+ 6.05	69.51	88.11	50.91	37.21	2.687
11. Nasal...	− 5.02	+0.79	+1.09	− 2.82	−12.31	+ 5.82	92.07	118.18	65.96	52.22	1.915
12. Gonial	+ 4.50	+1.21	−0.22	− 1.98	+ 4.61	+ 2.20	76.43	83.03	64.83	23.20	4.310
13. Anat. facial	− 1.47	+1.18	+0.40	− 2.61	+ 0.74	− 7.79	84.07	97.67	70.47	27.20	3.678
14. Length of leg	− 9.20	+0.54	+1.07	− 2.50	+ 3.04	− 8.57	52.72	57.87	46.68	11.19	8.928
15. Length of hand. ...	+16.10	−0.50	+1.38	− 0.75	+ 4.78	+ 3.77	26.55	30.63	22.68	7.95	12.578
All posit. deviations.		9.31	11.44	31.11	36.58	37.95					
All negat. deviations		15.88	9.87	23.21	43.90	37.83					
All deviations...		25.19	21.31	54.32	80.48	75.78					
Coefficients		1.679	1.421	3.621	5.365	5.052					

§39. Differences Between the Groups.

TABLE XLI.

Indices	Chinese of Shantung C	Cm	Mn	K	Chinese of Chihli Cm	Mn	K	Chin. of Man. Mn	K	Manchus K
1. Length of arm ...	−2.95	+ 0.29	− 5.24	+ 1.05	+ 3.24	− 2.29	+ 0.76	− 5.53	+ 0.76	+ 6.29
2. Length of upperarm.	−1.80	+ 0.90	− 6.03	− 2.52	+ 2.70	− 4.23	− 0.72	− 7.93	− 3.41	+ 3.51
3. Length of trunk ...	+2.84	+10.32	+ 0.10	+ 1.52	+ 7.48	− 2.74	− 1.32	−10.22	− 8.80	+ 1.42
4. Cephalic	+5.47	+19.74	+19.28	+19.93	+14.27	+13.81	+14.46	− 0.46	+ 0.19	+ 0.65
5. I height head	+6.28	+ 8.13	+ 7.81	+ 9.19	+ 1.85	+ 1.53	+ 2.91	− 0.32	+ 1.06	+ 1.38
6. Phys. facial	−1.39	+ 2.25	+ 3.54	+ 1.62	+ 3.64	+ 4.93	+ 3.01	+ 1.22	− 0.63	− 1.92
7. Length of forearm...	−0.68	0.00	+ 2.96	− 1.24	+ 0.68	+ 3.63	− 0.56	+ 2.96	− 1.24	− 4.19
8. Auricular	−3.32	+ 3.03	+ 1.47	− 8.59	+ 6.35	+ 4.79	− 5.27	− 1.56	−11.62	−10.06
9. II height head ...	−0.04	−13.65	−12.46	−12.13	−13.61	−12.42	−12.09	+ 1.19	+ 1.52	+ 0.33
10. Frontal	+3.23	− 2.66	− 9.81	+ 5.65	− 5.89	−13.04	+ 2.42	− 7.15	+ 8.31	+15.46
11. Nasal	+0.30	− 3.61	−13.10	+ 5.03	− 3.91	−13.40	+ 4.73	− 9.49	+ 8.64	+18.13
12. Gonial	−1.43	− 3.19	+ 3.40	+ 0.99	− 1.76	+ 4.83	+ 2.42	+ 6.59	+ 4.18	− 2.41
13. Anat. facial	−0.78	− 3.79	− 0.44	− 8.97	− 3.01	− 0.34	− 8.19	+ 3.35	− 5.18	− 8.53
14. Length of leg... ...	+0.53	− 3.04	+ 2.50	− 9.11	− 3.57	+ 1.97	− 9.64	+ 5.54	+ 6.07	−11.61
15. Length of hand ...	+1.88	− 0.25	+ 5.28	+ 4.27	− 2.13	+ 3.40	+ 2.39	− 5.53	+ 4.52	− 1.01
All posit. deviat.	20.53	44.66	47.08	49.25	40.21	39.23	33.10	20.85	29.18	47.17
All negat. deviat.	12.39	30.19	46.34	42.56	33.88	48.12	37.79	48.19	36.95	39.73
All deviations	32.92	74.85	93.42	91.81	74.09	87.35	70.89	69.04	66.13	86.90
Coefficient	2.195	4.990	6.228	6.121	4.939	5.813	4.724	4.603	4.409	5.793

Abbreviations: I height head—the relative height of the head to length of the head.
II height head—the relative height of the head to breadth of the head.

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The coefficient of differences between the Shantung group ($\Delta = 2.195$) is lower than that in the case of the absolute measurements ($\Delta = 2.601$). But the coefficient of differences between the Shantung group and Chinese of Manchuria ($\Delta = 4.990$) is higher than that in the case of the absolute measurement ($\Delta = 3.844$). The difference between the Chinese of Shantung and the Manchus and between them and the Koreans is higher than the difference between the Chinese groups; but it is not so accentuated as in the case of the absolute measurements.

The differences between the Chinese of Chihli and the other groups show some peculiarity. The coefficient of differences between this group and the Koreans ($\Delta = 4.724$) is lower than the coefficient of difference between this group and the Chinese of Manchuria ($\Delta = 4.939$). Also the coefficient of differences between the Chinese of Manchuria and Koreans ($\Delta = 4.409$) is lower than that between the Chinese of Manchuria and other Chinese groups.

It is very significant that the coefficient of differences between the Manchus and Koreans, on the one hand, and between the Manchus and Chinese of Chihli, on the other hand, are almost equal but much lower than in the case of the absolute measurements.

The above description of the interserial relations may better be seen from the Table below :

TABLE XLII.

	M	S	C	Cm	Mn	K
M	...	1.679	1.421	3.621	5.365	5.052
S	1.679	...	2.195	4.990	6.228	6.121
C	1.421	2.195	...	4.939	5.813	4.724
Cm	3.621	4.990	4.939	...	4.603	4.409
Mn	5.365	6.228	5.813	4.603	...	5.793
K	5.052	6.121	4.724	4.409	5.793	...

From this table and summary exposition there may be drawn deductions absolutely similar to those of §36. Thus the relative measurements show the same type of variations as the absolute measurements.

§40. General Conclusions.

On the basis of the conclusions in the preceding section I have calculated the coefficients of interserial differences for absolute and relative measurements together, as is shown in the following Table :

TABLE XLIII.

	M	S	C	Cm	Mn	K
M	...	1.413	1.711	3.183	6.403	5.757
S	1.413	...	2.450	4.274	7.053	6.709
C	1.711	2.450	...	4.549	7.276	6.451
Cm	3.183	4.276	4.549	...	5.249	4.780
Mn	6.403	7.053	7.276	5.249	...	6.498
K	5.757	6.709	6.451	4.780	6.498	...

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In this table it is seen that :

(1) The coefficients of the Chinese of China Proper are always very low relatively to other ethnical groups ;

(2) The Chinese of Manchuria differ from other Chinese groups as well as from the Manchus and Koreans ;

(3) The Manchus are closer to the Chinese of Manchuria than to the Koreans ;

(4) The Chinese of China Proper, though they show some differences among themselves, can be considered as an anthropological group differentiated from the Manchus and Koreans.

Taking into considerations these deductions I suppose that the Koreans and Manchus have influenced the Chinese of Manchuria ; the influence of the Koreans over the Manchus can be considered as insignificant, and the direct influence of the Manchus and Koreans over the Chinese of China Proper as almost nil. Of course, the degree of the influence cannot be stated with precision.

The migrations of the original anthropological elements located now more or less extensively over this territory and their amalagamation characterize both the present and the past time. In chapter II it was shown that in regard to several characteristics the Chinese of China Proper cannot be considered as a homogeneous group ; and the coefficient of differences together with the standard deviations (and the coefficients of variation) show that this population is highly amalgamated: even so, they differ from the populations of Manchuria and Korea.

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CHAPTER IV

THE COMPONENTS OF THE AMALGAMATED GROUPS.

§41. Method of Correlation. §42. Correlation of the Cephalic Index with the Stature. §43. Correlation of the Cephalic Index with the Nasal Index. §44. Correlation of the Stature with the Nasal Index. §45. Correlation of the Cephalic Index with the Frontal Index. §46. Nasal Index as a Character of Differentiation. §47. Other Indices and Measurement Correlated.

§41. Method of Correlation.

In the present chapter I shall apply the method of correlation to discover the anthropological elements of the groups of the present study. The description of this method can be found in the new manuals of statistics and especially in the publications of Prof. K. Pearson.[1] Therefore, I shall omit the description of this method and limit myself to presenting the field of correlation with all calculations of the moments and the coefficient of correlation for only two measurements.

This method is not yet adopted by all anthropologists, though it gives very fruitful results; its use is, however found in English, Russian and German anthropological studies. I have applied this method in my study on the anthropology of the Tungus of Urulga and Barguzin; also to the anthropological materials collected by Mr. L. J. Sternberg in the Amurland and Mr. B. E. Petrie in Irkutsk Gov.

It will be seen that the coefficients of correlation in some cases are absolutely insignificant and the dispersion of the individuals on the field of correlation quite confused. This is natural for such an amalgamated population as the Chinese. But at the same time the analysis of the dispersion of individuals on the fields of correlation may furnish some very important facts concerning the distribution of the anthropological types among different groups. Therefore, even in the cases where the coefficients of correlation would be quite insignificant for further deductions based on the numerical value of the coefficients this method can still be fruitfully applied.

§42. Correlation of the Cephalic Index with the Stature.

(See Table A).

The positive sign of the coefficient, though it is relatively low ($r = -0.125$; $E_r = \pm 0.024$), shows that a high stature correlates with a low cephalic index and a low stature correlates with a high cephalic index. But taking into consideration the very low numerical value of the coefficient, the above conclusion can be considered but a suggestion. It may be noted that this conclusion in general corresponds to my conclusions in the preceding chapters.

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1. Prof. K. Pearson, *"The Grammar of Science,"* the series *"Biometrica"* and so on.

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From the field of correlation it can be seen that the insignificant numerical value of the coefficient can be explained by the presence of a group of individuals of small stature and relatively low cephalic index within the lower-left positive square. This group is composed of 127 individuals, i.e., 32% of the whole Series, and definitely influences the coefficient. Another group of high stature, over 1750, and low cephalic index (about 75) appears very distinctly within the lower-right negative square. Finally, within the upper-left negative square a group of moderate stature (about 1630) and a relatively high cephalic index (about 85) can be observed.

This consideration together with the low coefficient of correlation confirms my supposition as to the amalgamated character of the Chinese. Therefore I shall now analyze the territorial groups separately.

(See Table B).

The coefficient of correlation is so low ($r = -0.070$; $E_r = \pm 0.035$) that it practically has no significance, because of the high probable error. But it is significant that a group of individuals of moderate stature with cephalic index about 85 cannot be found in this field and a group of high stature (about 1690) with a high cephalic index (over 83) is distinguishable within the upper-right positive square. The group of the lower-left as well as in the last mentioned field is very numerous. This fact probably causes a decrease of the coefficient that nevertheless is preceded by negative sign. The summary observation of the distribution of individuals in the field shows that the Chinese of Shantung are an amalgamation of different types.

(See Table C).

Very significant are the results of the correlation of the cephalic index with stature of the Chinese of Chihli. The coefficient of correlation, though of very insignificant numerical value ($r = +0.086$; $E = \pm 0.041$) has the positive sign that shows that this group is composed of other types than the Chinese of Chihli. In fact, the high stature in this case correlates with the high cephalic index and the low stature correlates with the low cephalic index, just opposite to the results of the preceding Table B. Nevertheless in the field of the Chinese of Chihli a group of individuals of high stature with very low cephalic index can also be observed. This group doubtless influenced the decrease of the coefficient of correlation. Two groups, i.e., a group of high stature with high cephalic index and another one of low stature with low cephalic index, which was noted on the Table B, can be distinguished on this field. But the group of moderate stature with high cephalic index is almost absent. The Chinese of Chihli thus are an amalgamation of different types.

(See Table D).

The coefficient of correlation in this case is very insignificant, but the negative sign shows that this group is composed of different types. Also the high stature correlates with the low cephalic index and the low stature correlates with the high cephalic index. On the field of correlation the dispersion of the individuals shows a picture different from the preceding ones, because the disposition of the squares in this case is oriented to a cephalic index which is much higher, i.e., 83 instead of 80, and a lower stature, i.e., 1650

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TABLE A.

Cephalic Index and Stature.

——— Chinese ; – – – – Manchus ; —·—·—· Koreans.

$\nu = -0{,}27041$; $\nu^2 = -28.66348$; $\Sigma e = -106$; $\sigma_x = 4.507$;

$\nu_1 = +0{,}11735$; $\nu_1^2 = +5.39810$; $\Sigma e_1 = +46$; $\sigma_y = 6.144$;

$\Sigma ee_1 = -1348$; $N = 392$; $r = -0{,}124$, $E_r = \pm 0.024$;

$M_{Ceph.\ I.} = 80.17$; $M_{Stat.} = 166.57$.

Note :

$$\nu = \frac{\Sigma e}{N}; \quad \nu^2 = \frac{\Sigma e^2}{N}; \quad \nu_1 = \frac{\Sigma e_1}{N}; \quad \nu_1 = \frac{\Sigma e_1^{\,2}}{N};$$

$$\sigma_x = \sqrt{\Sigma e^2 - \nu^2}; \quad \sigma_y = \sqrt{\Sigma e_1^{\,2} - \nu_1^{\,2}}; \quad r = \frac{\Sigma ee_1}{N\sigma_x\sigma_y}; \quad E_r = 0.67449\frac{1-r^2}{\sqrt{N}}.$$

Calculation of Σee_1

Upper right square (positive).

+1(2+4+3+8+7+8+13+17)	= 62	+1(1+10+12+12+10+18+7+8+11+12)	= 101
2(2+6+5+18+9+11)	= 102	2(3+21+8+10+12+7+16+10)	= 174
3(2+6+12+6+10)	= 108	3(3+24+5+12+10+13+14)	= 243
4(2+2+3+10+6+7+10)	= 120	4(2+3+12+12+5+6+9)	= 196
5(1+2+4+10+12+7)	= 180	5(2+8+6+10+11)	= 185
6(1+3)	= 24	6(2+8+9+8+7+10)	= 264
7(3+6+16+20)	= 315	7(6+4+5+18)	= 231
8(3+2+4+5)	= 112	8(3+5)	= 64
10(9)	= 90	9(6)	= 54
11(5)	= 55	10(3)	= 30
14(7)	= 98		
	= +1266		= +1542

Upper left square (negative).

−1(1+3+10+6+5+6+7+16+12+13)	= 78	−1(1+4+6+8+15+6+8+20)	= 78
2(2+4+15+15+12+7+18)	= 146	2(2+4+3+8+10+12+14+30+12	
3(1+2+6+10+7+9+12)	= 141	+28+15+21)	= 318
4(1+6+7+11)	= 100	3(4+6+8+12+9+11+12)	= 186
5(2+9+8+10+10)	= 200	4(2+6+15+12+24+14+15+17)	= 420
6(1+2+3+5+6+11+16)	= 264	5(1+2+3+12+5+9+10)	= 210
7(1+3+4+12+8+15)	= 301	6(2+2+3+14+8+20+34)	= 498
8(2+8+5)	= 120	7(1+4+16+11+15)	= 329
9(4+3)	= 63	8(5)	= 40
10(4+9+10)	= 230	9(6+3+13)	= 198
15(6)	= 90	10(5)	= 50
16(6)	= 96		
	= −1829		= −2327

$\Sigma ee_1 = (+1266) + (1542) + (-1829) + (-2327) = -1348.$

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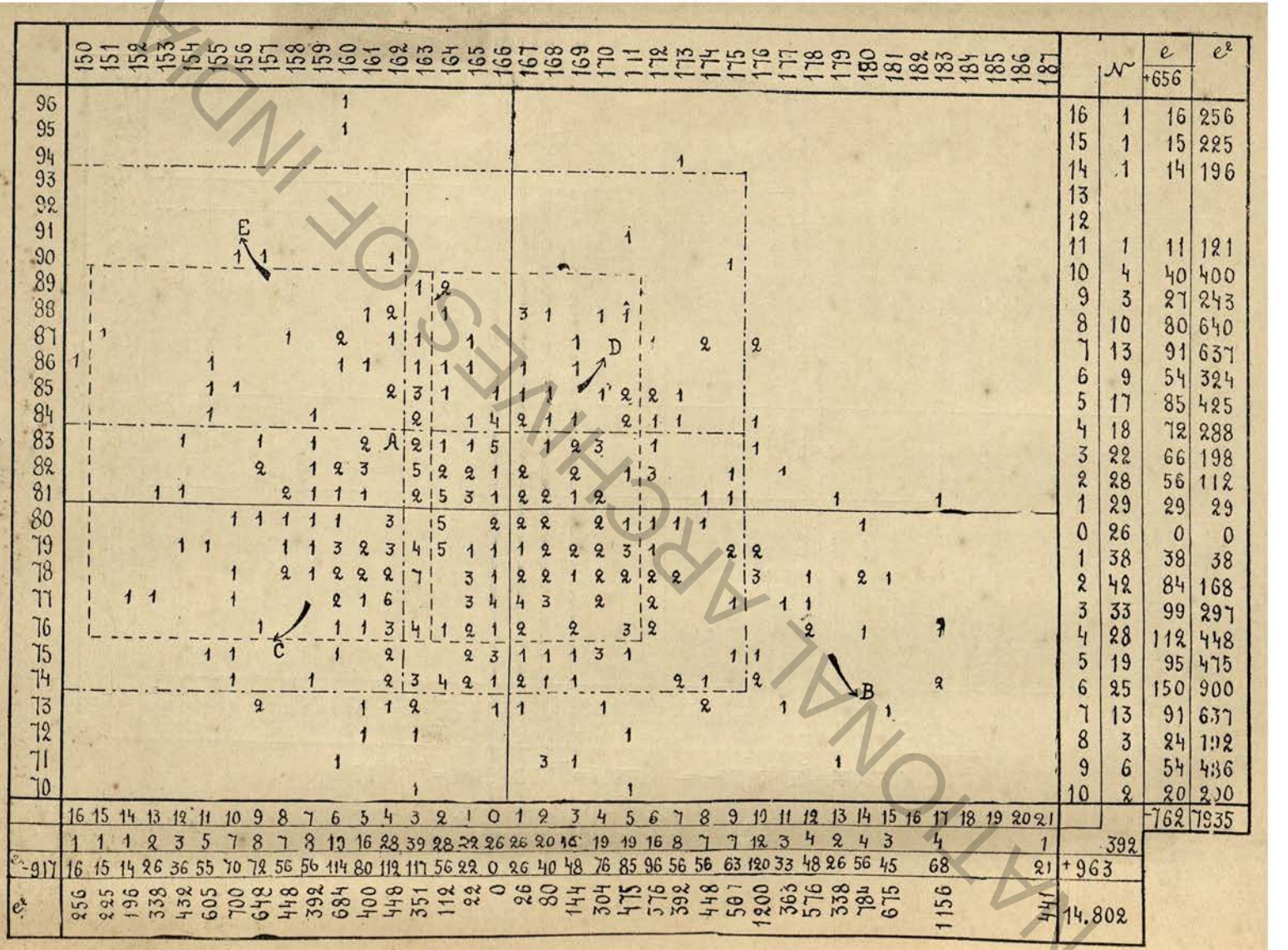
A
B
C
D
E

| | | |

TABLE B

CHINESE OF SHANTUNG

Cephalic Index and Stature

$N=184$; $\Sigma ee_1 = -287$; $\sigma_x = 3.744$; $\sigma_y = 5.958$;

$M_{Ceph.\ I.} = 78.51$; $M_{Stat.} = 166.55$; $r = -0.070$; $E_r = \pm 0.035$.

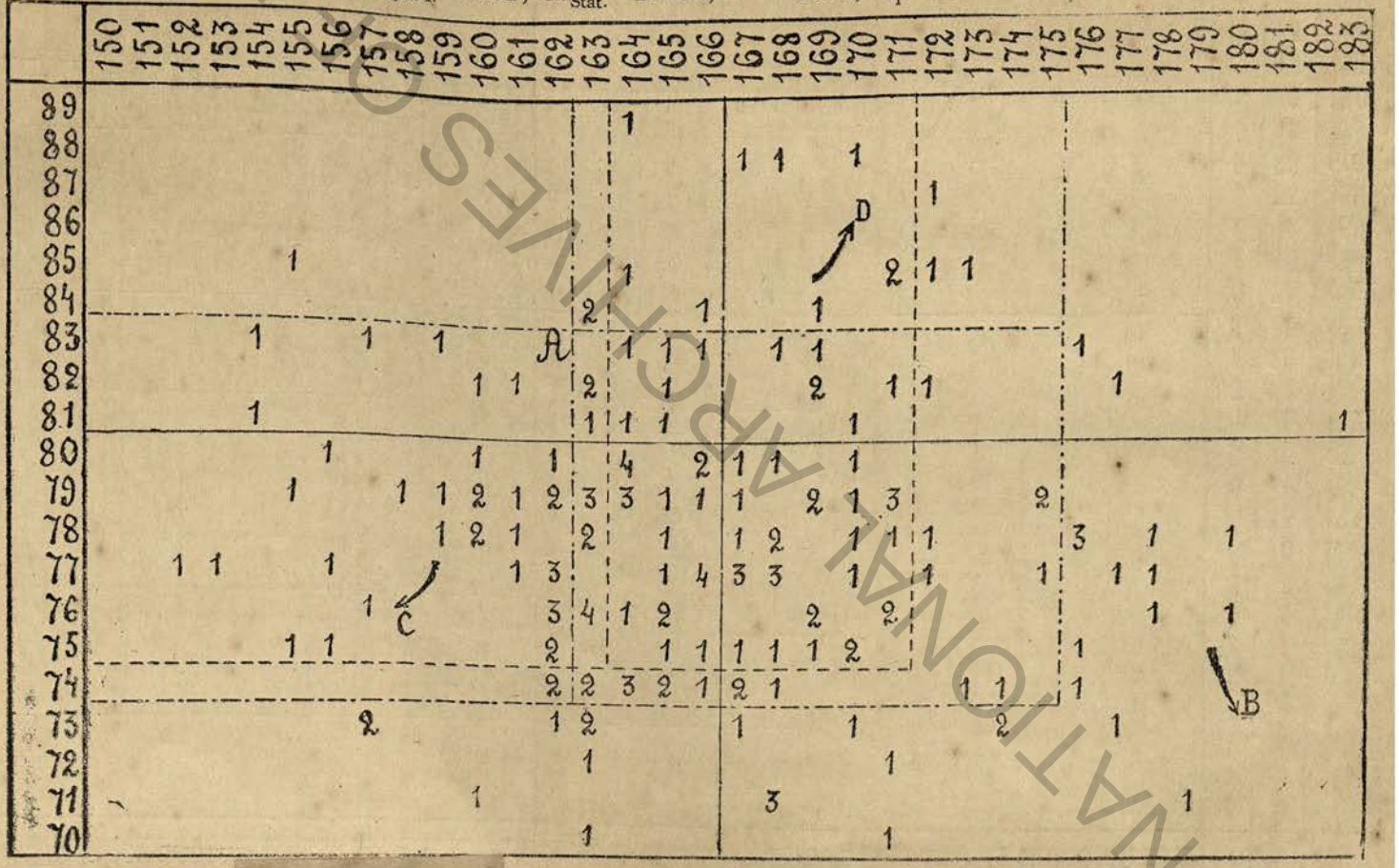

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TABLE C

CHINESE OF CHIHLI

Cephalic Index and Stature

$N=113$; $\Sigma ee_1=+265$; $\sigma_x=3.742$; $\sigma_y=6.316$;

$M_{Ceph.\ I.}=79.92$; $M_{Stat.}=167.89$; $r=+0.086$; $E_r=\pm 0.041$.

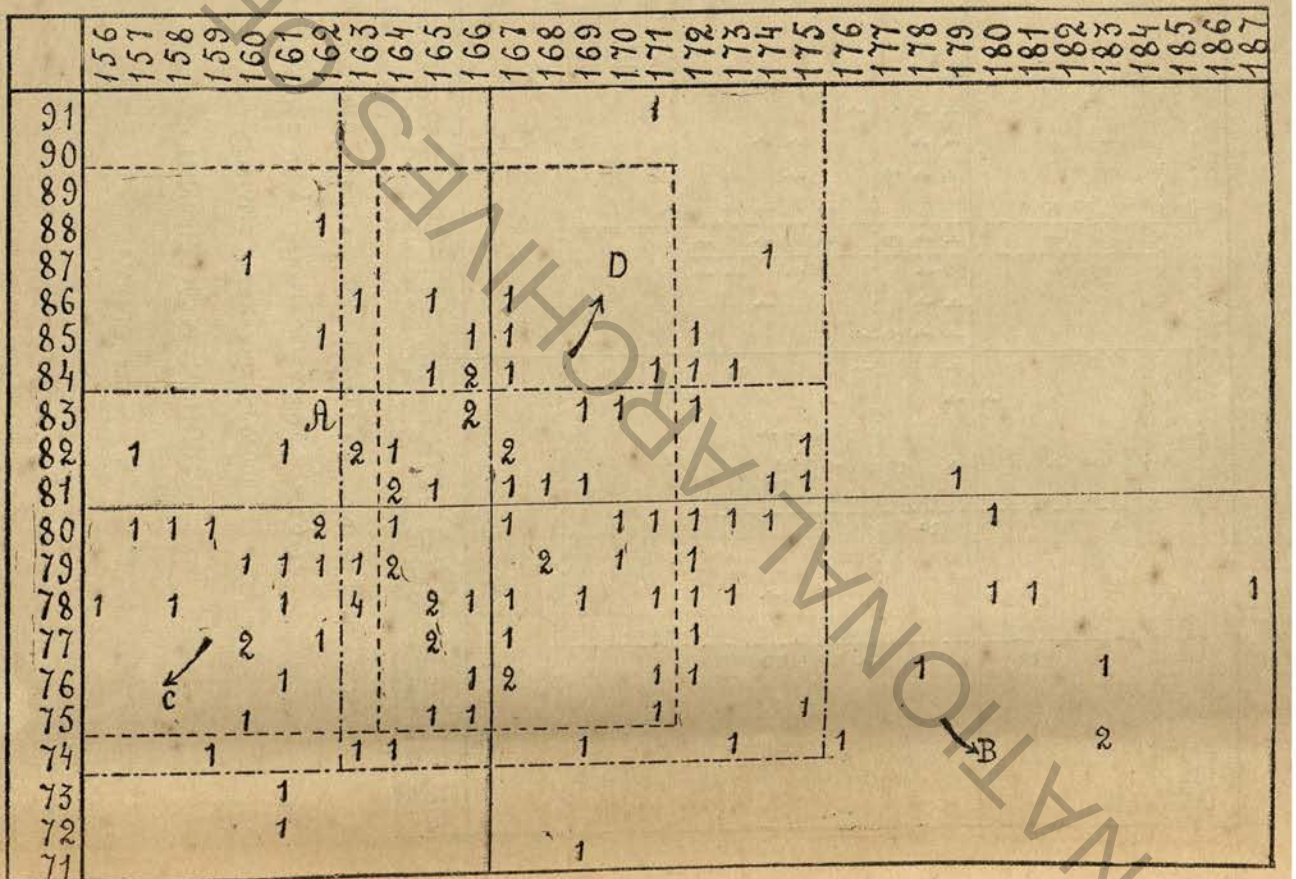

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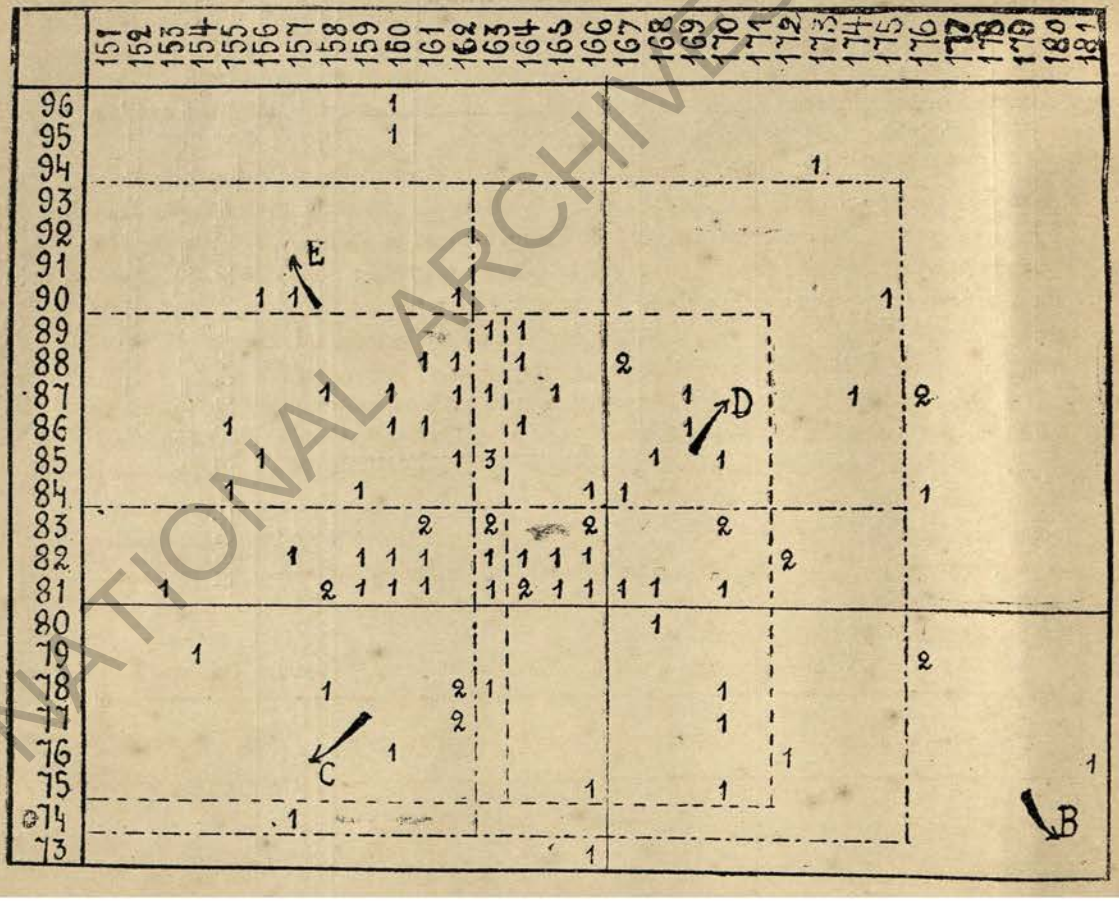
TABLE D

CHINESE OF MANCHURIA

Cephalic Index and Stature

$N=95$; $\Sigma ee_1=-190$; $\sigma_x=4.489$; $\sigma_y=5.937$;

$M_{Ceph.\ I.}=83.64$; $M_{Stat.}=165.04$; $r=-0.075$; $E_r\pm=0.048$.



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instead of 1660. Therefore, the meanings of the coefficient in all these cases are different. In this field can be seen other components of the complex. The groups of the lower squares, so characteristic for the Chinese of Chihli and Shantung, are represented very poorly, but the main mass of this group is composed of individuals of moderate stature with cephalic index about 83 and of the type of high stature with high cephalic index. Some traces of the types of low stature with high cephalic index influenced probably the negative meaning of the coefficient.

After this brief exposition it is clear that this Chinese group is a complex of types, in common with other Chinese groups. The presence of the individuals within the upper-left negative square discloses another anthropological element almost absent among Chinese of China Proper.

As shown, MM of the stature and cephalic index of the Chinese of Shantung and Chihli are very close, but the observation of the fields of correlation and the different signs of the coefficients show that these groups are composed of different anthropological types. Among the first group a type of moderate stature with high cephalic index and another one of high stature with low cephalic index I shall provisionally designate as A and B. Other types observed among this group influenced the decrease of the numerical value of the coefficient and confused the distribution of the individuals in the field of correlation.

The group of Chihli is composed of two fundamental types mentioned above as the elements confusing the distribution of the types A and B in the preceding field. The fundamental types of the Chinese of Chihli will be as follows: one type can be characterized by a high stature (about 1690) and high cephalic index (over 85) that I shall designate by D and another one of small stature with low cephalic index, that I shall designate by C. The type C is largely represented among the Chinese of Shantung; the type A is very poorly represented among the Chinese of Chihli.

The group of Chinese of Manchuria is quite different from other Chinese groups by MM of the stature and cephalic index, and in its field of correlation does not include extreme representatives of the types B and C.[1] The characteristic type of this group of the left upper square corresponds exactly to the type A,—the major part of the individuals in the centre of field do not differ very much from the normal variations of the characteristics of the type A. The type D has its representative among this group. Some representatives of the types B and C influenced the removal of the ranges with ± 0 of deviation to the right and down.

The results of the preceding analysis can be shown in the following Table:

Groups of Chinese	Fundamental types	Incidental types	Trace of types
Shantung	A and B	C and D	...
Chihli	C and D	B	...
Manchuria	A	D	C and B

1. An individual of 1810 stature and 76 ceph. index can be excluded from the series because his stature is so high and exceptional in this series, that it differs from the maximum limit (1760) of the series by 50, i.e., almost equivalent to σ of the series.

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TABLE E

MANCHUS

Cephalic Index and Stature.

$N = 80$; $\Sigma ee_1 = +137$ $\sigma_x = 2.652$; $\sigma_y = 5.104$;

$M_{Ceph.\ I} = 83.25$; $M_{Stat.} = 163.09$; $r = +0.127$; $E_r = \pm 0.052$.

	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171
89														1					1		
88														1							
87									1	1									2	D	1
86							1			1			1	1	1			1		1	
85					1	1		1				1			1						
84	1				1		1	1	2	2	1	1	1	2	1						1
83					1							A	1		1	2		1	3	1	
82				1			1				1	3	2	3		1		1			1
81		1			1		1	1			2				1			1			
80	1					1		1										2			1
79																					
78									1		1	1			1					1	
77																					
76								C													
75								1													

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It might be explained now why the coefficient of correlation of Table A is so insignificant in its numerical value. The group of Shantung and Chihli neutralized themselves in the common field. Simply the presence of the Chihli group, the major part of individuals of which lie within the upper left negative square (relatively to the field of Shantung group), caused the negative sign of correlation with some numerical value.

In the preceding chapter it was shown that the Chinese group of Manchuria is influenced by their neighbours,—the Manchus and Koreans. Therefore I shall now analyse these series with a view to discover their components.

(See Table E).

From this Table it can be seen at a glance that the Manchus are more homogenous than the Chinse groups. The standard deviations of this group are, relatively to those of the Chinese groups, lower ($\sigma_x = 2.652$ and $\sigma_y = 5.104$). The positive sign of the coefficient of correlation, though not very high ($r = +0.127$; $E_r = \pm 0.052$), shows that the high stature, corresponding to the moderate stature of the Chinese, correlates with the high cephalic index, and the low stature, about 1570, correlates with the low cephalic index, corresponding to the moderate cephalic index of the Chinese. In the Manchu field is no space for the type B and A also very limited space for the type C.

The better to show relations between the ethnical groups I have superimposed the fields of correlation and marked with lines the limits of the field and the ranges with ± 0 of deviations; I also marked approximately with letters and arrows the places of the hypothetical types.

The right lower square of the Manchus field, containing the Chinese crossing of ranges with ± 0 of deviation, including a relatively large number of individuals (31%) cannot annul the positive sign of the coefficient of correlation. But the main Manchu type corresponds to the type A of the Chinese. Among the Manchus can also be observed the type D, which is the cause of the positive sign of the coefficient. Some trace of the type C can be distinguished in this field too.

(See Table F).

The most interesting phenomena may be observed in the field of correlation of the Koreans. As in the preceding case the Koreans have a low standard deviation of Stature ($\sigma = 4.771$), but a relatively high standard deviation of the cephalic index ($\sigma = 4.154$). The coefficient of correlation ($r = +0.029$) has practically no value. In this field can be seen the following types: The main mass of the Koreans, as in the case of the Manchus, lies within the upper left square of the Chinese field, the types D and C are also numerous, but the Korean field contains no space for the type B. At the same time a new type appears within the upper left square, which can be characterized by a moderate or even low, stature, and a very high cephalic index (about 89). This type I shall designate by E. Some trace of this type can be seen among the Chinese of Manchuria too.

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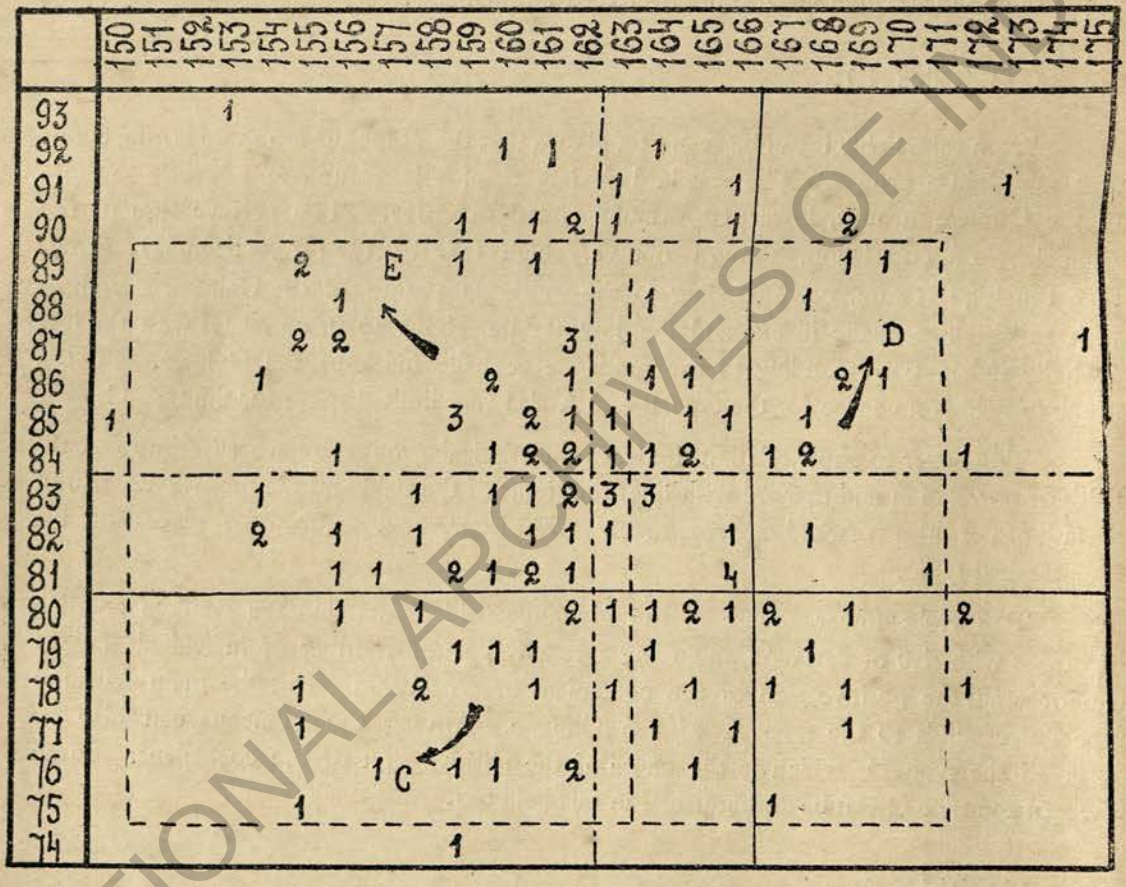
TABLE F

KOREANS

Cephalic Index and Stature.

$N = 142$; $\Sigma ee_1 = +84$; $\sigma_x = 4.154$; $\sigma_y = 4.771$;

$M_{Ceph.\ I.} = 83.69$; $M_{Stat.} = 162.88$; $r = +0.029$; $E_r = \pm 0.039$.



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The results of this analysis can be shown more clearly in the following Table :—

Groups	Fundamental type	Incidental type	Trace of type	Approximate characteristics of the types		
				Types	Stature	Ceph. index
Chinese of Shantung	A and B	C and D	...	A	1620	83
Chinese of Chihli ...	C ahd D	B	...	B	1750	75
Chinese of Manchuria	A	D	C, B and E.	C	1590	77
Manchus	A	C and D	...	D	1690	85
Koreans	A and E	C	D	E	1570*	89

*Or, may be, 1600.

In this Table it may be seen that :

(1). the type B is characteristic for the Chinese of China Proper ;

(2). the type D is very common among all groups—it is fundamental for the Chinese of Chihli, incidental among others, except the Koreans among whom it is seen only as a trace.

(3. The type E is characteristic for the Koreans only and shows some traces among the Chinese of Manchuria.

(4). The type A is fundamental for all except the Chinese of Chihli.

(5). The type C is fundamental for the Chinese of Chihli but it is common also among the other groups.

It seems to me, that the type A is the result of the amalgamation of other types as for example, the types B and E, or C and D. This type is very numerous among the Chinese groups and, maybe, became so stable as now to influence other ethnical groups. I cannot build up all the particularities of the process of formation of these groups, but some general lines can be traced

The following deductions may be drawn from the foregoing exposition :—

The type B may be considered as a Chinese type, i. e. more characteristic for the population of China Proper and Manchuria who speak at the present time Chinese and are connected with the Chinese ethnographical complex.

The type D is common for almost all groups.

The type C is common for all groups.

The type E is characteristic of the Koreans only.

Thus the Chinese of Manchuria and the Manchus are the amalgamations of different types and I shall try to discover where they can be found outside of these groups. The types B and E are already known. It remains to establish the ethnical connections of the types C and D. From this standpoint my study of the anthropology of the Tungus of Transbaikalia is very instructive. There may be distinguished two types among the Tungus of Urulga[1]

1. The standard deviation of the stature is very close to that of the Chinese ($\sigma=59.36$; $V=3.660$); the standard deviation of the cephalic index is also close to that of the Chinese ($\sigma=3.925$; $V=4.621$), MM of the stature are lower ($M=1621$) and M of the cephalic index higher ($M=84.93$) than those of the Chinese.

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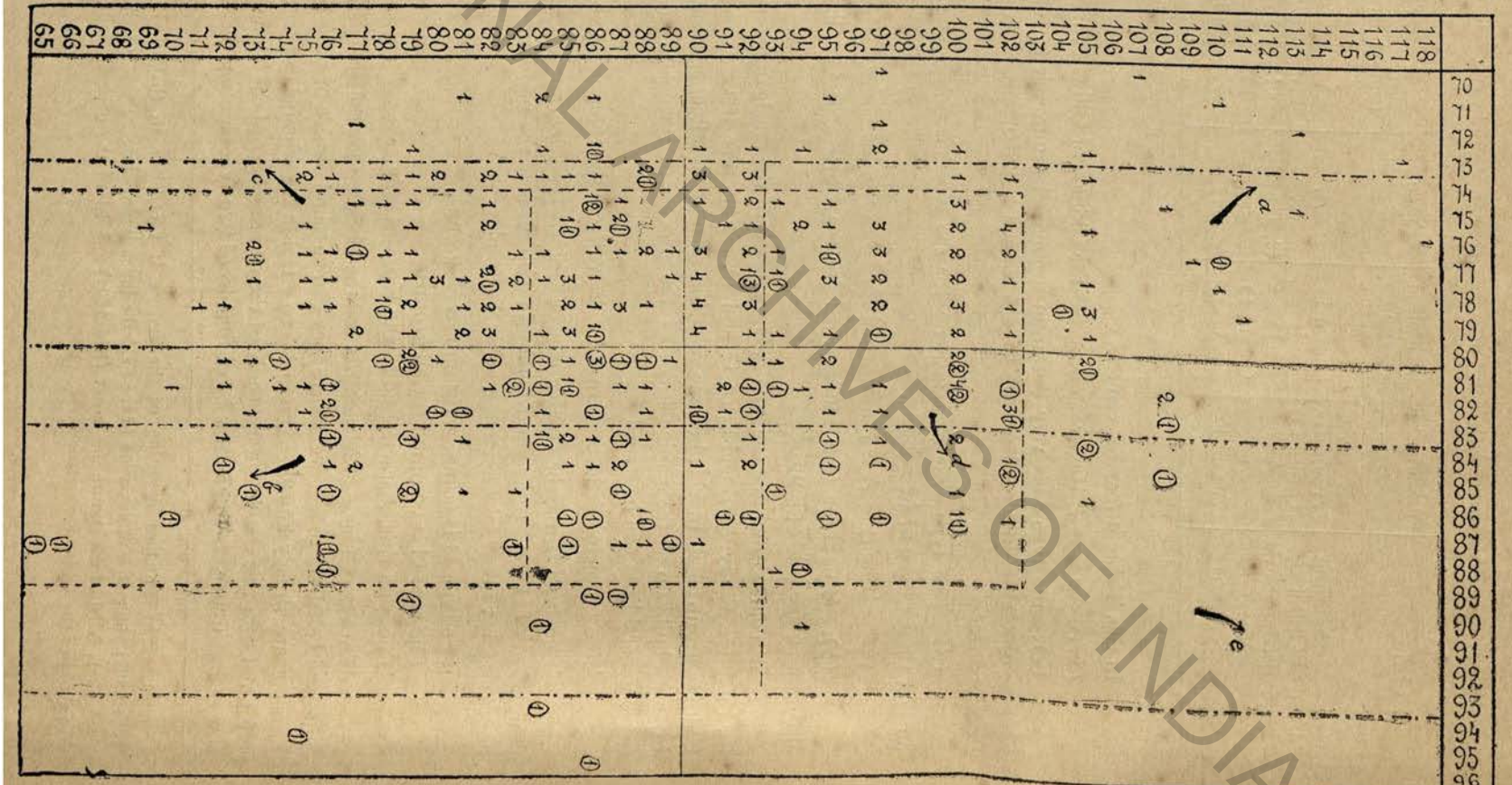
TABLE G

Nasal Index and Cephalic Index

(Figures in Circle: Chinese of Manchuria)

$N = 388$; $\Sigma ee_1 = -2319$; $\sigma_x = 8.86$; $\sigma_y = 2.652$;

$M_{Nas.\ I.} = 89.45$; $M_{Ceph.\ I.} = 80.17$; $r = -0.254$; $E_r = \pm 0.023$.



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and among some of the Tungus of Barguzin. The main mass of the Tungus of Urulga are composed of the type A, but the positive sign of the coefficient of correlation ($r = +0.15$) shows that this group is composed of types about similar to the types C and D.

I have taken in this study the type D to be of Mongol origin (Buriats) and the type C as a unsolved problem. I have found traces of this type among many ethnical groups in Siberia, as for example the Soiots of Northern Mongolia and the Northern Tungus.[1]

In my series of the Tungus of Barguzin[2] the coefficient of correlation ($r = +0.15$) shows only traces of the type D and includes as component the type C (stature—about 1570, ceph. index—77). As in other cases the main mass of this group is an amalgamation of types.

Finally in the materials concerning the Gilyaks[3] and other ethnical groups of the Amurland, the influence of the type C is clear enough to be recognized: but the type E among Gilyaks is so pronounced that its influence results in producing a negative sign of the correlation, i.e., the low stature correlates with the high cephalic index and the high stature correlates with the low cephalic index.

This evidence cannot be explained without the supposition of an ancient origin for the type C, that intermingled more or less sparsely among almost all ethnical groups investigated up to the present time in the territory of Asia. This type is very common among the Tungus and may be considered as fundamental among the Chinese.

As regards the type D, I have already noted its Mongol (Buriats) origin. But some investigation of the Mongolian groups shows a preponderance of the moderate cephalic index and other features that suggest doubt, so that I cannot claim the type D as a positively Mongol type. It might therefore be supposed with a high degree of probability that the Mongols of to-day are amalgamated as well as other ethnical groups. At least they cannot be considered as a homogeneous unit. I hope that further analysis of the Mongol materials will clear up this problem.

§43. Correlation of the Cephalic Index and Nasal Index.

(See Table G).

The coefficient of correlation ($r = -0.254$; $E_r = \pm 0.023$) shows that among the Chinese a low cephalic index correlates with a high nasal index and a high cephalic index correlates with low cephalic index. But the presence of a numerous group within the lower left square and the relatively low numerical value of the coefficient show that the Chnese from this standpoint are an amalgamation. The analysis of the dispersion of the individuals on the field of correlation can furnish some explanation of these phenomena. The lower right square is occupied generally by the Chinese of Manchuria—48 individuals of this group (51%) out of a total of 89 ; at the same time only 12% of the Chinese of Shantung and 16% of the Chinese of Chihli lie within this square. Furthermore the

1. After the materials of Mr. J. J. Mainoff.
2. M of the stature 1591; M of the ceph. index 82.10.
3. Unpublished materials of Mr. Sternberg.

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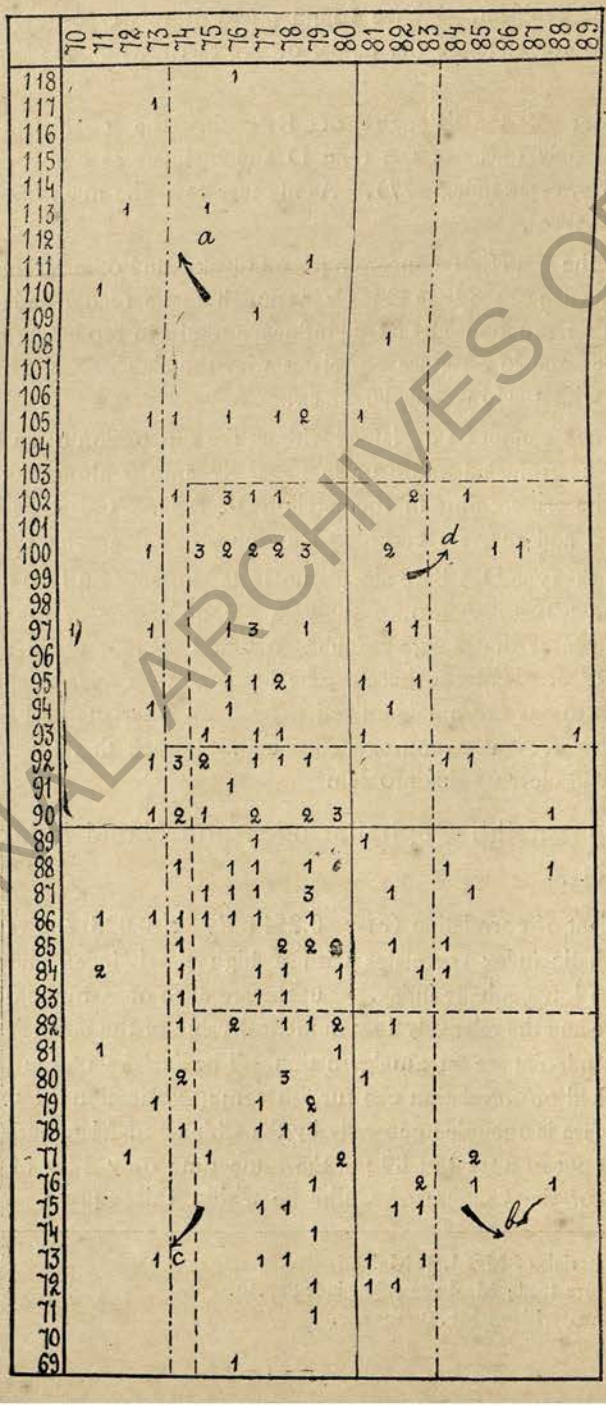
TABLE H

CHINESE OF SHANTUNG

Nasal Index and Cephalic Index

$N = 182$; $\Sigma ee_1 = -1138$; $\sigma_x = -0.263$; $\sigma_y = 3.744$;

$M_{Nas.\ I.} = 89.86$; $M_{Ceph.\ I.} = 78\ 51$; $r = -0.163$; $E_r = \pm 0.034$.



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upper right square is not characteristic for the Chinese of Shantung (Table H) only 8% of which are within this square. This square is more characteristic for the Chinese of Chihli (19%) and it is characteristic for the Chinese of Manchuria (25%). Thus the right lower square is characteristic for the Chinese of Manchuria and was the probable cause of the negative sign of the coefficient of correlation. The presence of a numerous group within the lower left square influenced, of course, the decrease of the numerical value of the coefficient of correlation.

Within the lower right square may be distinguished a group of individuals with cephalic index about 85 and nasal index about 75. The extreme variations of this type occupy the extreme ranges of the field. Within the upper left square may be distinguished another group with very high nasal index (over 100) and low cephalic index (about 75) The extreme variations of this group occupy the extreme ranges of the square. Within the lower left square, the most numerous group of the Chinese series, can be seen a group with low cephalic index (75) and low nasal index (75). The fourth square has its characteristic group with high cephalic index (about 85) and high nasal index (about 100). This last group is not very influential among the Chinese. The above analysis and very high standard deviations (Ceph. index $\sigma = 5.604$; Nasal index $\sigma = 8.86$), as I have noted before, show that the Chinese are a complex of anthropological types and are amalgamated in a high degree. Therefore, I shall analyse the Chinese groups separately with a view to discover the dispersion of the components among the groups.

(See Table H).

The negative sign of the coefficient of correlation ($r = -0.163$; $E_r = \pm 0.034$) shows that the dispersion of the individuals, though the range of ± 0 of deviation is removed to the left is nevertheless it similar to that of Table G. But in the field of the Chinese of Shantung the types I noted before are more clearly seen. Within the lower left positive square and upper right positive square are found the numerous groups which influenced the decrease of the negative coefficient of correlation. Therefore the types located within the upper left and lower right negative squares can be considered as the fundamental types of the Chinese of Shantung while the types of the other two squares are incidental types of this group. The type of the lower left square is developed almost in the same degree as the fundamental types.

(See Table I).

The coefficient of correlation ($r = +0.111$; $E_r = +0.045$) has the positive sign, which is contradictory to the results of the correlation of the Table G, but at the same time explains why the numerical value of the coefficient of the Table G is relatively low. In fact, the Chinese of Chihli, being relatively close to the Chinese of Shantung by MM of these characters, are evidently composed of different types, as was observed in the case of the correlation of cephalic index with stature. Thus it includes the fundamental types: one with high cephalic index (about 85) and high nasal index (about 100) and another one with low cephalic index (75) and low nasal index (75). The low coefficient of this group can be explained by the presence of a group with low cephalic index and high nasal index.

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TABLE I

CHINESE OF CHIHLI

Nasal Index and Cephalic Index

$N=112$; $\Sigma ee_1=+418$; $\sigma_x=9.191$; $\sigma_y=3.742$;

$M_{Nas.\ I.}=90.02$; $M_{Ceph.\ I.}=79.92$; $r=+0.111$; $E_r\pm0.045$.

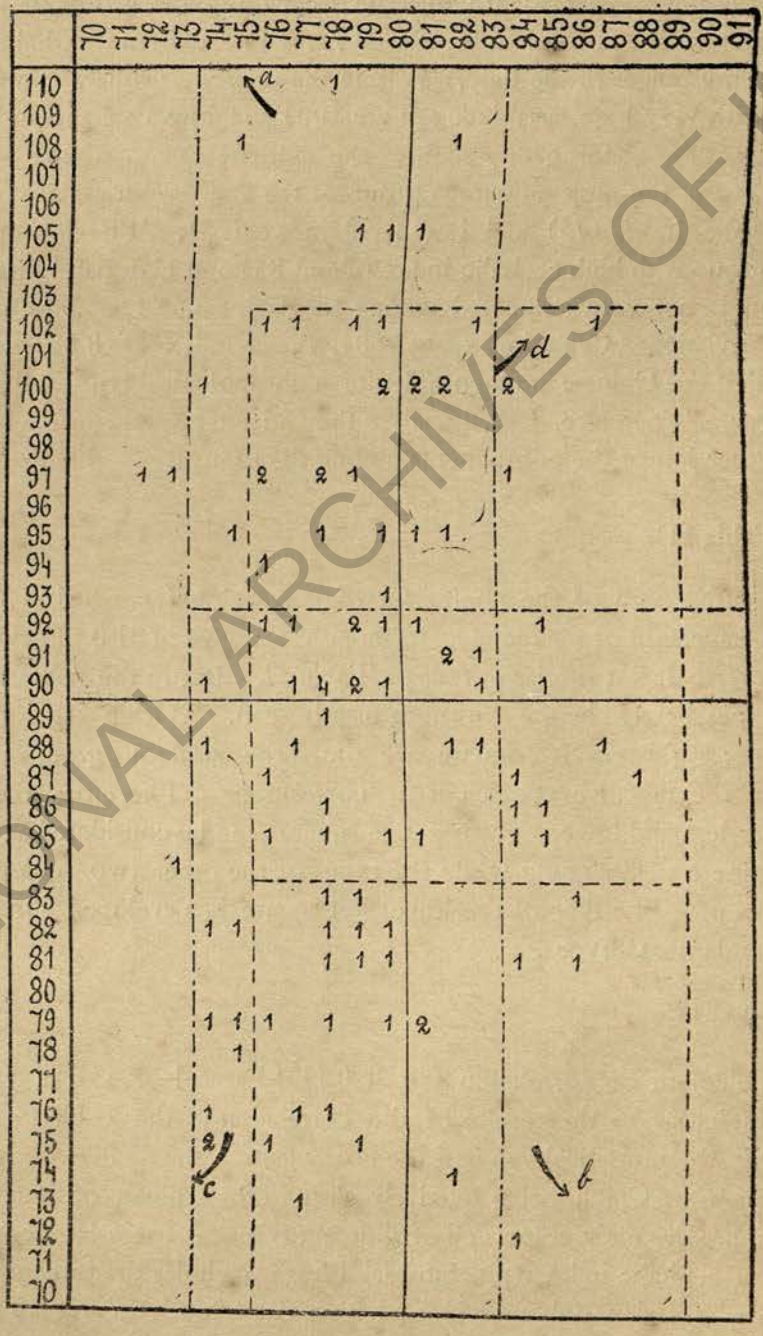

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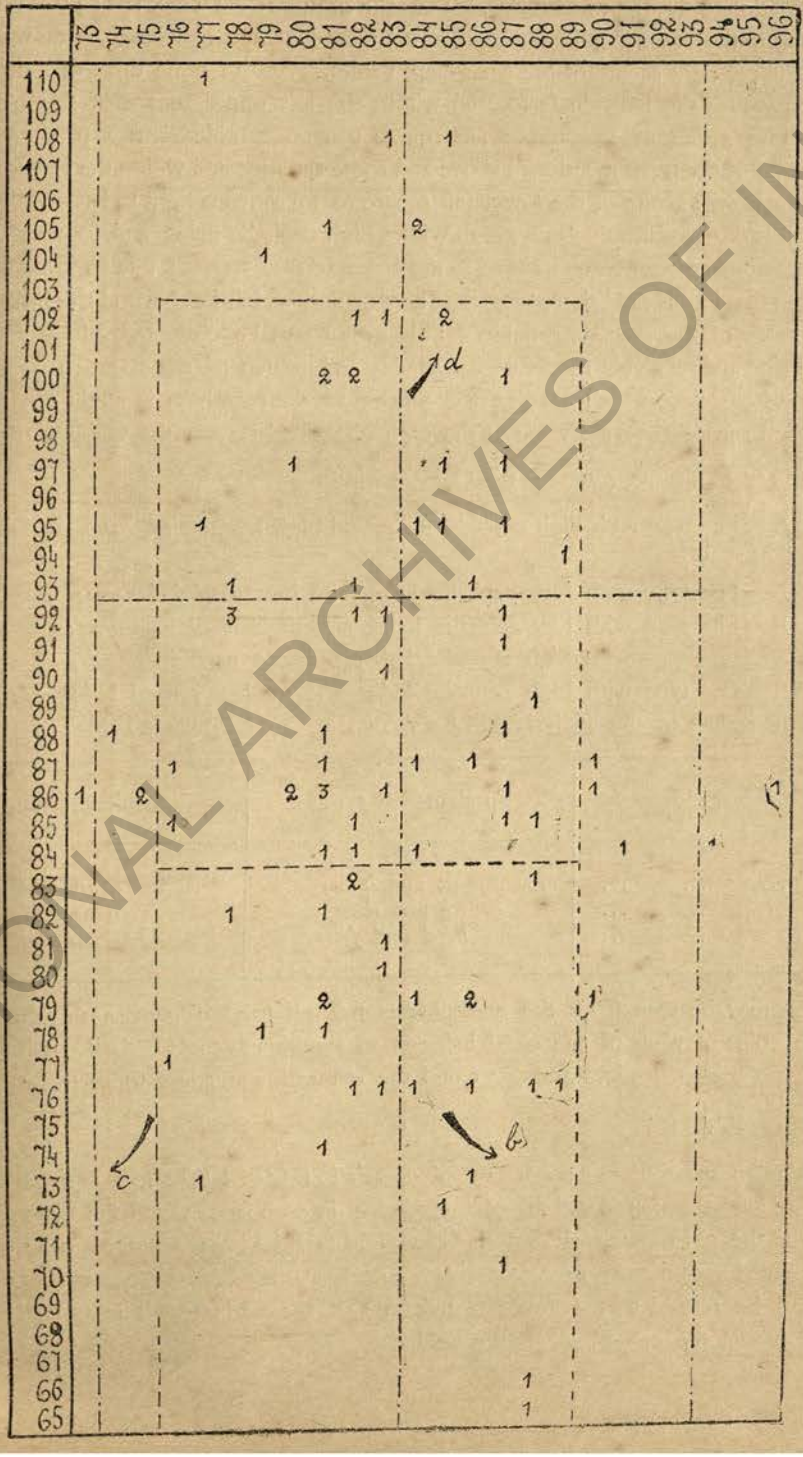
TABLE J

CHINESE OF MANCHURIA

Nasal Index and Cephalic Index

$N = 94$; $\Sigma ee_1 = -711$; $\sigma_x = 9.787$; $\sigma_y = 4,489$;

$M_{Nas.\ I.} = 87,98$; $M_{Ceph.\ I.} = 83.64$; $r = -0.172$; $E_r = \pm 0.047$.



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(See Table J).

The coefficient of correlation ($r = -0.172$) conserves the negative sign, but the relative meaning of this correlation must be corrected by the removal of the ranges with ± 0 of deviation to the right and down. Thus the group of the upper left square is not the same as that in the preceding Tables,—it is composed of the individual cases which lie within the upper right square of the preceding Tables. At the same time this field does not leave space for the individuals located within the left upper square of the preceding Tables. The group of the upper left square can be considered as a product of the amalgamation of the types mentioned above and some type located within the lower half of the field. Also the group of the lower left square removes from right to left and decreases the coefficient of correlation. The group with a high cephalic index and low nasal index is very numerous and can be considered as the characteristic type of this series. It might also be seen that in this field there appears a new group, which lies beyond the limit of the cephalic index of the preceding fields. This group can be characterized by very high cephalic index and relatively moderate nasal index and influenced the negative sign of the coefficient of correlation. Though the coefficient is relatively high it vould be higher if the lower left square had not a trace of the type characteristic for the Chinese of Chihli.

The types characteristic for the Chinese will be as follows:

(1). The type with high cephalic index and high nasal index that I shall designate provisionally by—*d;*

(2). The type with low cephalic index and low nasal index—*c;*

(3). The type with low cephalic index and high nasal index—*a;*

(4). The type with high cephalic index and low nasal index—*b;*

(5). The type with high cephalic index and moderate nasal index—*f;*

The results of the analysis can be shown in the following Table:

Chinese groups	Fundamental types	Incidental types
Shantung	*a* and *b*	*c* and *d*
Chihli	*c* and *d*	*a* and *b*
Manchuria	*b*, *d* and *f*	*a*

As may be seen from the preceding exposition, the amalgamation of the Chinese from the point of view of the nasal index is so significant, that I shall analyze other eries of the present study, hoping to find the ethnical equivalent to them.

(See Table K).

The meaning of the coefficient of correlation ($r = +0.127$; $E_r = \pm 0.052$) must be corrected by the considerations of the relative, in comparison with the Chinese fields, removal of the ranges with ± 0 of deviation. In this field may be seen a group of individuals located within the upper left square just near the Chinese range-crossing. This group can be related to the amalgamated type of the Chinese. The type *d* may be observed within the upper half of the field.

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TABLE K

MANCHUS

Nasal Index and Cephalic Index

$N = 80$; $\Sigma ee_I = +218$; $\sigma_x = 8{,}12$; $\sigma_y = 2.652$

$M_{Nas.\ I.} = 83.02$; $M_{Ceph.\ I.} = 83.52$; $r = +0.127$; $E_r = \pm 0.052$.

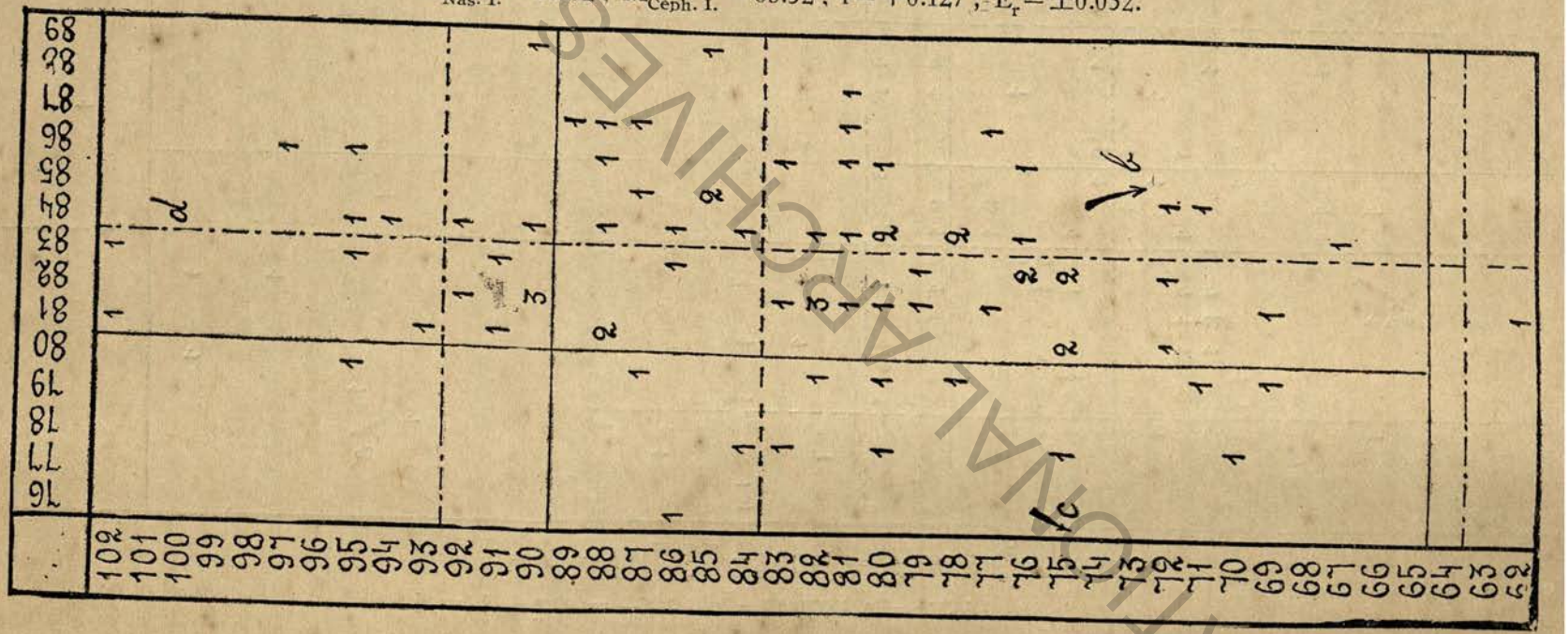

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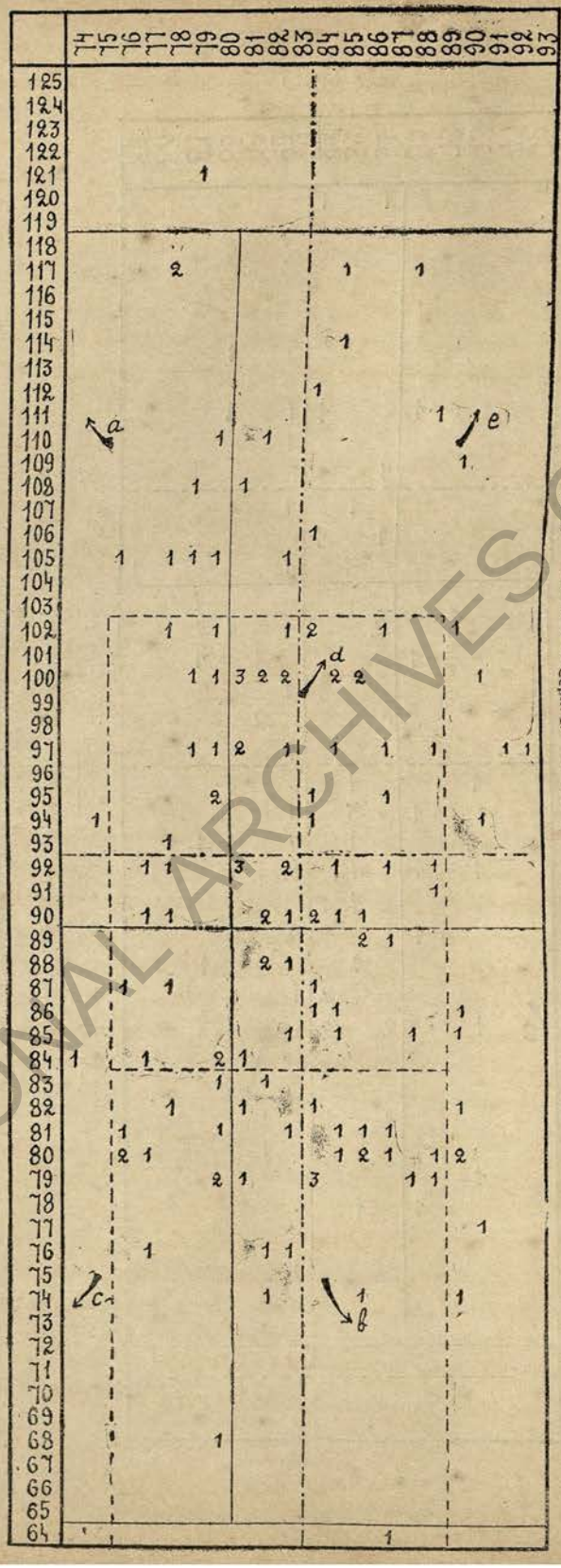
TABLE L

KOREANS

NASAL INDEX AND CEPHALIC INDEX

$N = 141$; $\Sigma cc_1 = -356$; $\sigma_x = 11.626$; $\sigma_y = 4.154$;

$M_{Nas.\,I.} = 92.49$; $M_{Ceph.\,I.} = 83.69$; $r = -0.017$; $E_r = \pm 0.040$.



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The type *b* of the Chinese series is represented by a large group that lies within the lower half of the field. Some individual cases which can be related to the type *c* are located within the lower left square, but this type cannot be represented so largely as in the field of the Chinese, because the Manchu field does not leave space for the extreme variations of this type. The superimposing of the fields,—the Manchu with the Chinese,—shows that the major part of the Manchus lie within the lower right square of the Chinese field. Therefore, the type *b* must be considered as the fundamental type of the Manchus and the types *d* and *c*, the positive sign of the coefficient notwithstanding, may be considered as incidental.[1] Also it is interesting, that the Manchu field does not leave space for the extreme variations of the types *d* and *c*, or any place for the type *a*; the Chinese upper left square in the Manchu field is empty.

(See Table L).

This table is very instructive and it may elucidate my Chinese data. Though the coefficient of correlation ($r = -0.017$; $E_r = \pm 0.040$) is practically of no significance, the dispersion of the individuals in the field is very characteristic[2] and shows the influence of different groups which I have disclosed in the preceding tables. Because of the excessive dispersion of the individuals (standard deviation of the nasal index $\sigma = 11.626$) a new type *e* with very high nasal index and high cephalic index is found. The removal of the ranges with ± 0 of deviation comparatively to the Chinese field on right and down, gives another meaning to the coefficient. The type *d* in this field is within the upper right and upper left squares, just as was observed in the case of the Manchus. At the same time within the upper left square may be observed some trace of the Chinese of the type *a*. The type *f* that was observed in the field of the Chinese of Manchuria is represented in this field and perhaps reinforced by the type *b*. Also the type *c* reduces the negative coefficient of correlation. The field within the upper right square outside of the field of the Total Chinese and Manchus may be considered as characteristic for the Koreans. It can be characterized by very high cephalic index and very high nasal index. Thus the Koreans can be characterized as a group composed of the types known among the Chinese and the type *e* characteristic for the Koreans only. But the types *b* and *c* must be considered as traces and the types *d* and *e* as incidental though the type *e* is a characteristic type for the Koreans only.

About 50% of the Koreans are within the upper right square of the Chinese and especially of the Chinese of China Proper. This explains the presence of this type among the Chinese through the influence of the Koreans, or, rather, the influence of the anthropological types composing the Korean complex.

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1. Maybe it will better to consider the main mass of the Manchus as an amalgamation of the type *b* with the type *d*.

2. The same result can be seen in the Table of correlation of the stature with the cephalic index.

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The preceding analysis can be exposed in the following Table:

Groups of	Fundamental type	Incidental type	Traces of type
Shantung	*a* and *b*	*c* and *d*	...
Chihli	*c* and *d*	*a* and *b*	...
Manchuria..	*b*, *d* and *f*	*a*	...
Manchus	*b* and *d*	*c*	...
Koreans	*d* and *f*	*e* and *b*	*c* and *a*

The type f can be considered as a result of amalgamation of the types b and e, therefore this Table can be simplified, as follows:

Groups	Fundamental types	Incidental types	Traces of types	Approximate characteristics of the types		
				Type	Ceph. ind.	Nas. ind.
Shantung	*a* and *b*	*c* and *d*	...	*a*	75	110
Chihli	*c* and *d*	*a* and *b*	...	*b*	84	75
Manchuria ...	*b* and *d*	*a* and *e*	...	*c*	75	75
Manchus	*b* and *d*	*c*	...	*d*	84	100
Koreans	*d* and *e*	*b*	*c* and *a*	*e*	90	110

The ethnical distribution of these types will be exposed after the analysis of the correlations of the stature with nasal index.

§44. Correlation of the Stature with Nasal Index.

(See Table M).

The coefficient of correlation is so low ($r = -0.027$; $E_r = \pm 0.024$) that the erratum is about equivalent. The low coefficient may be explained by the crossing of the lines of correlation of the components. In the field of correlation within the upper left square may be seen a group of low stature with very high nasal index and another group of very low stature and high nasal index. Within the upper right square appears a relatively isolated group of high stature (over 1750) with high cephalic index. But this group and even the whole square are not influential, —17% only. The most important group lies within the lower left square, —the hypothetic type of which may have a stature of about 1590 and a nasal index 78. Within the lower right square can be seen also a group of high stature—1690—with low nasal index (75). At a glance it might be seen that within the lower left square the group of the Chinese of Manchuria are represented more largely than within other squares. For example within the upper right square 11% only of this group are located. Therefore the first square can be considered as a characteristic for this group. Neverthless in this particular distribution of the Chinese of Manchuria the coefficient is very low and negative. The analysis of the Chinese by the territorial groups may help to disclose their components.

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TABLE M

Nasal Index and Stature

[*Figure in Circle: Chinese of Manchuria*]

N=392; $\Sigma ee_1 = -575$; $\sigma_x = 6.144$; $\sigma_y = 8.865$;

$M_{Nas.\ I.} = 89.45$; $M_{Stat.} = 166.57$; $r = 0.027$; $E_r = \pm 0.024$.

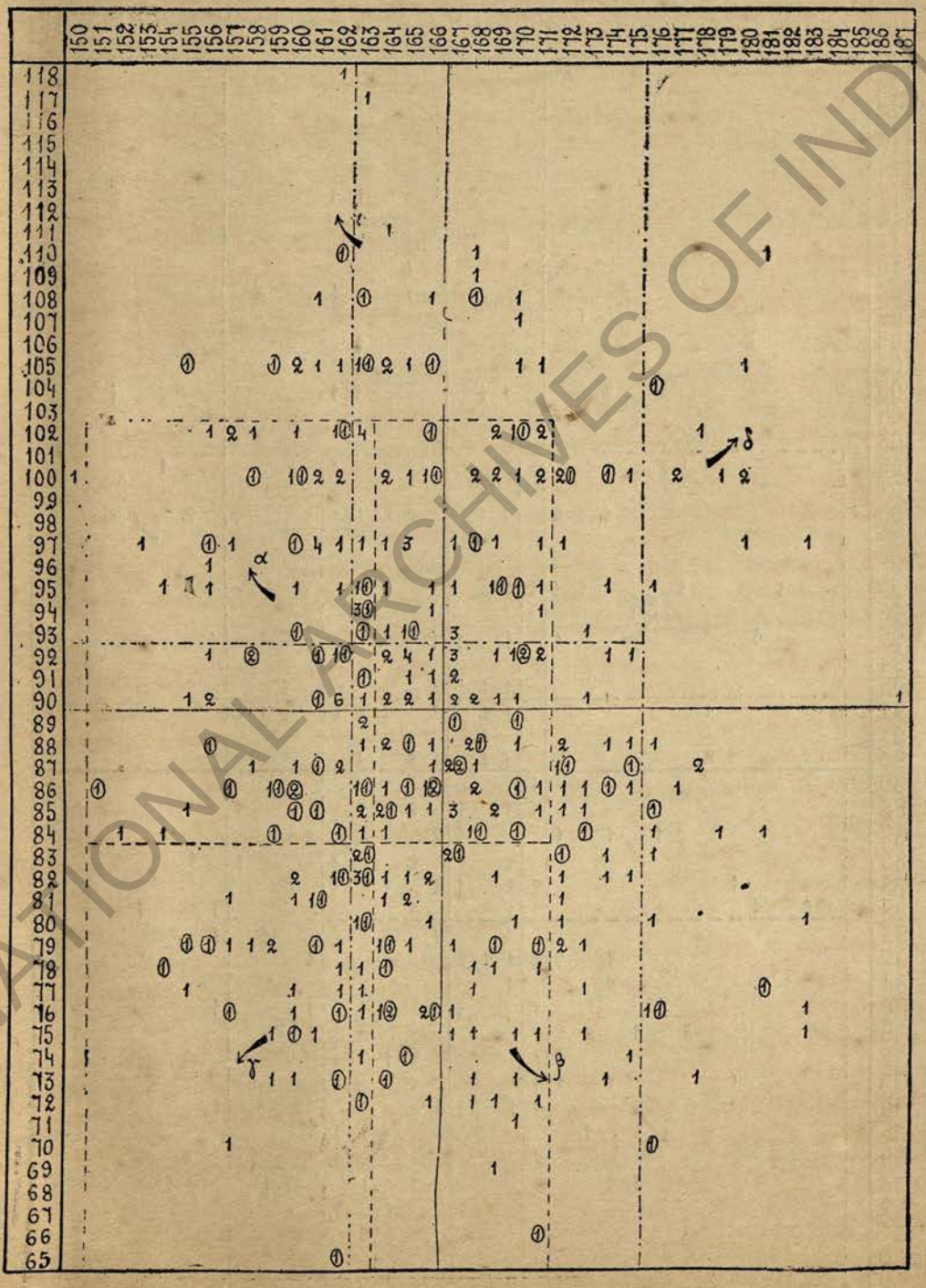

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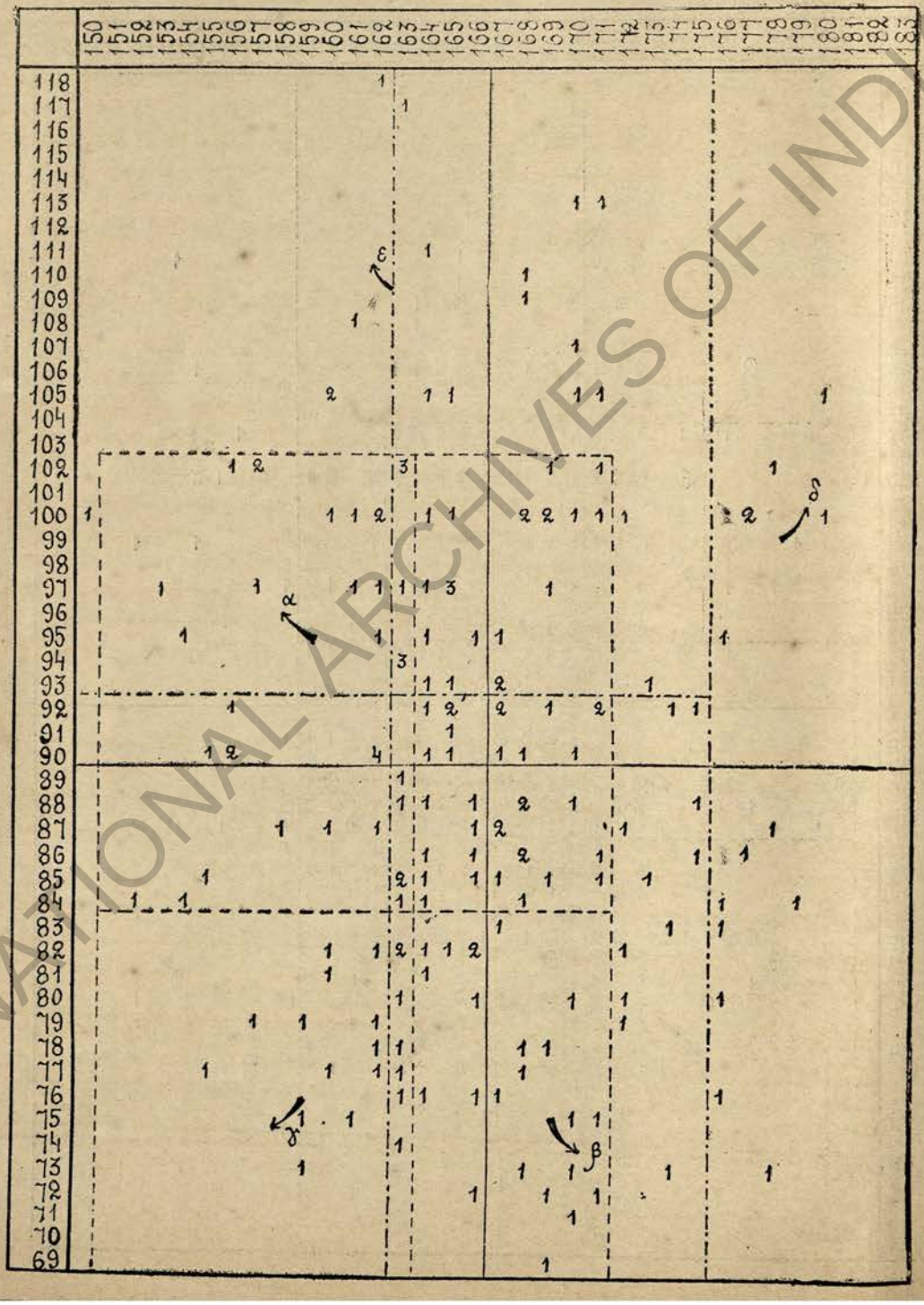
TABLE N

CHINESE OF SHANTUNG

Nasal Index and Stature

$N=184$; $\Sigma ee_1=-663$; $\sigma_x=10.263$; $\sigma_y=5.958$;

$M_{Nas.\ I.}=89.86$; $M_{Stat.}=166.75$; $r=-0.059$; $E_r=\pm 0.035$.



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(See Table N).

The negative sign of correlation ($r = -0.059$; $E_r = \pm 0.035$), in the presence of the insignificant numerical value of the correlation, can be considered as a hint as to the correlation of the low stature with the high nasal index, but the groups located within the positive square are also very numerous. Within the upper left square I suppose the amalgamation of two types, i.e. the type with stature about1570 and nasal index 95-100, which I shall designate by α, and another one of moderate stature, 1620, and nasal index about 110, which I shall designate by ε. The leading type of the lower right square I shall designate by β with stature about 1690 and nasal index about 75. The type, with stature over 1750 and nasal index about 100 located within the upper right square, I shall designate by δ; and the characteristic type of the lower left square with stature about 1570 and nasal index ,5, I shall designate by γ. Thus this group can be considered as a complex of the fundamental types α, ε, β and incidental types γ, δ which perhaps may be considered as influential as the other types of this series.

(See Table O).

As in the preceding case the coefficient of correlation is of no practical significance ($r = -0.007$; $E_r = \pm 0.045$). Neverthless the field of correlation can furnish some evidence. For instance, the extraordinary dispersion of the individuals in the field of correlation shows that this group is profoundly amalgamated. Secondly, the types which were discovered in the preceding Table can be observed in the present field too. The type ε in this field shows only traces and the type α of this square is more numerous. At the same time the type δ seems to be more numerous than in the preceding Table N. Within the lower right square the type β is evidently more developed and the type γ within the lower left square is numerous as well as in Table N. This group thus has no leading types and can be characterized as a complex of all types except ε types.

(See Table P).

The coefficient of correlation ($r = -0.052$; $E_r = \pm 0.049$) is low as well as in the preceding case. The type γ is more numerous than other types. Relatively the type ε is more numerous than the type α. The types β and γ are very poorly represented, the type δ shows only a trace. Thus the type ε, γ, β can be supposed to be fundamental, the type α as incidental and the type δ as only a trace better.

The results of the above analysis can be seen in the following Table:

Groups of	Fundamental type	Incidental type	Trace of type
Shantung	α β ε	γδ	...
Chihli	α β γδ	...	...
Manchuria..	ε γ β	α	δ

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TABLE O

CHINESE OF CHIHLI

Nasal Index and Stature

$N=113$; $\Sigma ee_1=-48$; $\sigma_x=9.191$; $\sigma_y=6.316$;

$M_{Nas.\ I.}=90.02$; $M_{Stat.}=167.89$; $r=-0.059$; $E_r=\pm 0.035$

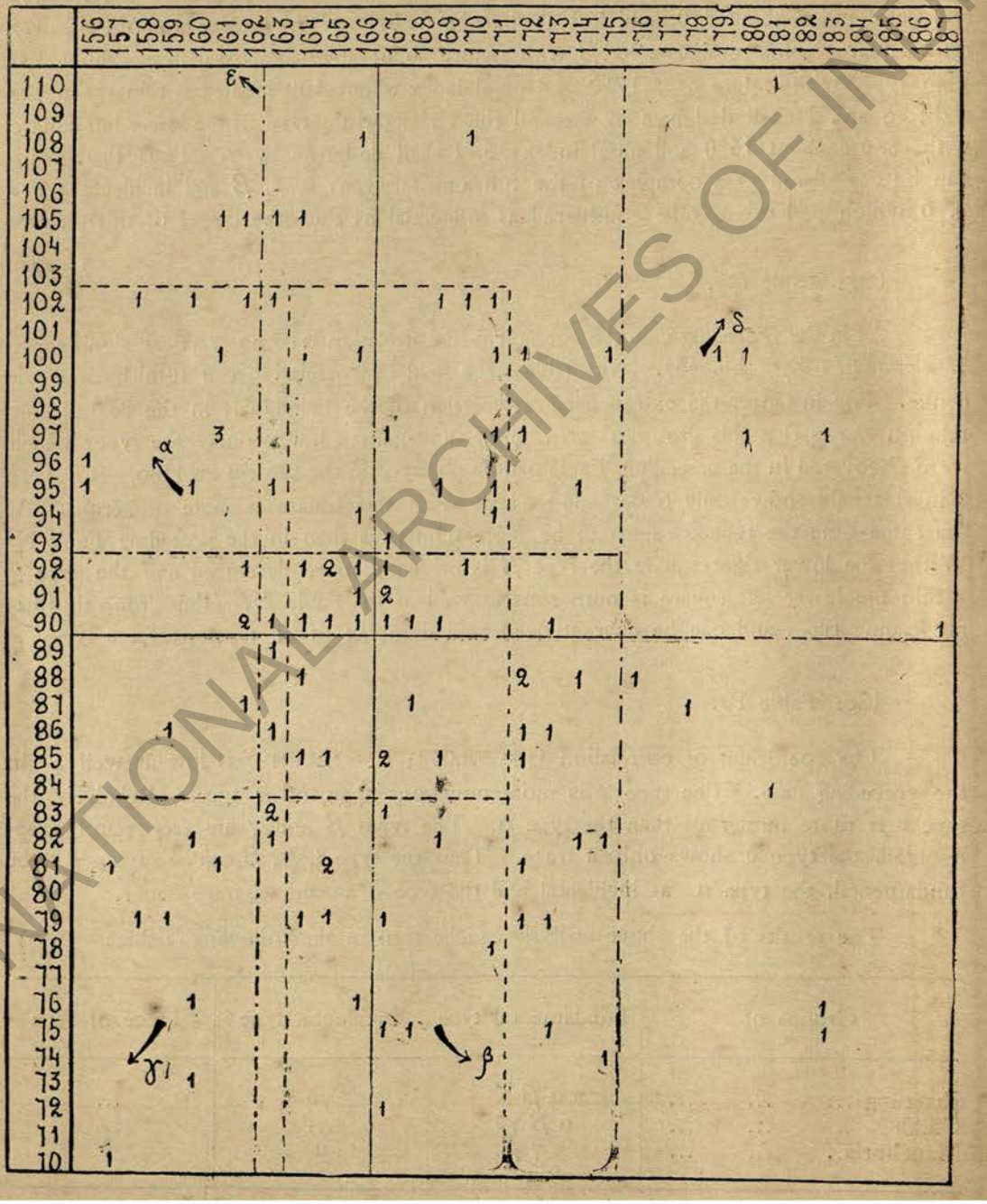

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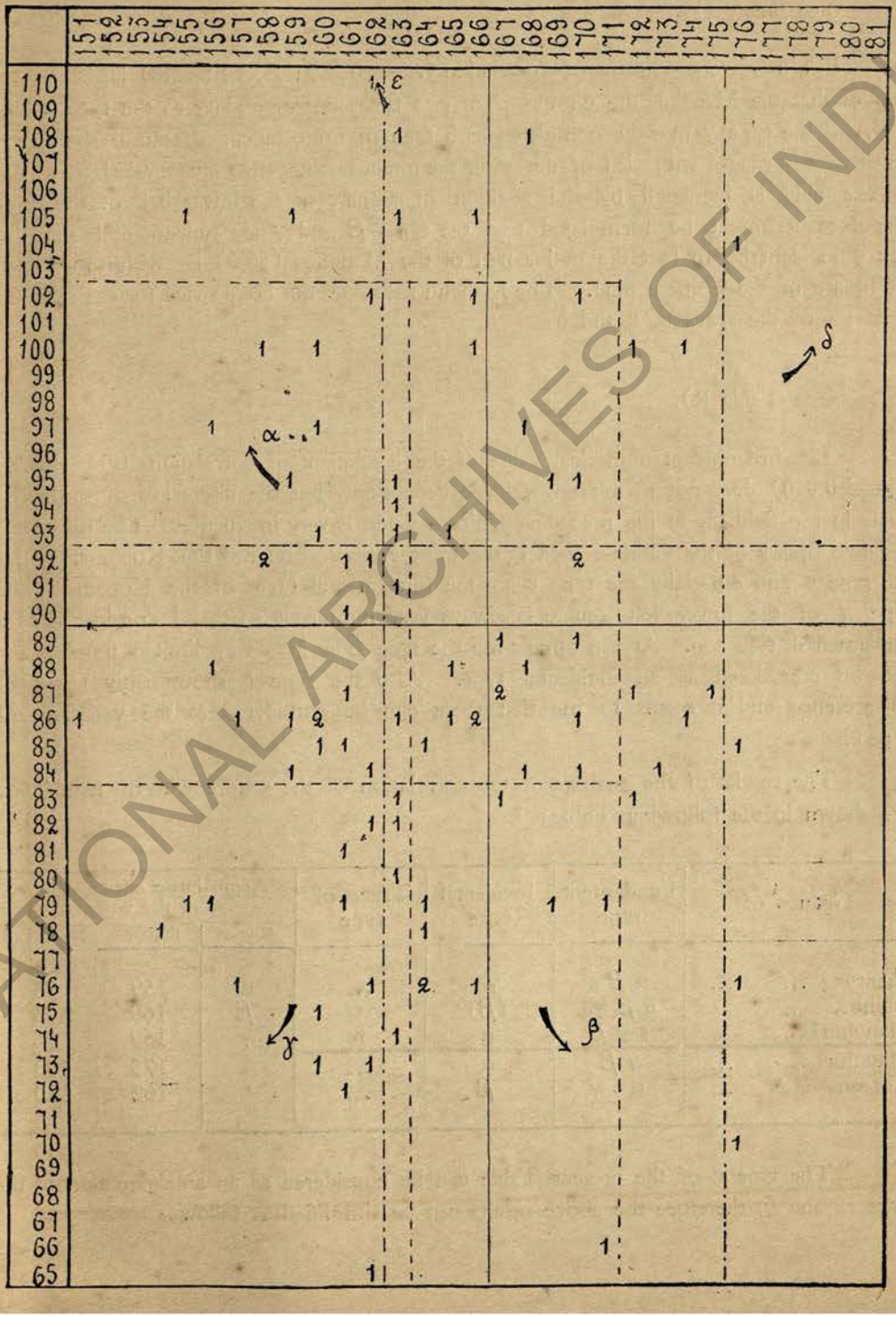
TABLE P

CHINESE OF MANCHURIA

Nasal Index and Stature

$N = 95$; $\Sigma ee_1 = -281$; $\sigma_x - 9.787$; $\sigma_y - 5.937$;

$M_{Nas.\ I,} = 87.98$; $M_{Stat.} = 165.04$; $r = -0.052$; $E_r = \pm 0.049$.



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Perhaps it will be better to consider the Types ε, and β as incidental among the Chinese of Chihli, because these types can serve as differentiation of two groups,—those of Shantung and Chihli.

Now I shall analyse the fields of the Manchus and Koreans.

(See Table Q).

The negative coefficient of correlation ($r = -0.289$; $E_r = \pm 0.048$) leads me to suppose that the Manchus are composed of two types corresponding to the type α and β. Also the type γ may be considered as a type of importance. Because of the removal of the ranges with ±0 of deviation the upper left negative square relatively to the Chinese field is increased by the addition of a part of the lower half of the field. Therefore it might be formulated that the types β and γ are fundamental and the type α incidental. In fact the major part of the Manchus (56%) lie within the lower left square of the Chinese field. The Manchu field does not leave space for the extreme variations of the types α, ε and δ.

(See Table R).

The insignificant numerical value of the coefficient of correlation ($r = -0.024$; $E_r = \pm 0.040$) does not permit any reliable deductions, but the dispersion of the individuals in the field, as in the preceding Chinese fields, is very instructive. The upper left negative square of the Chinese field is the most characteristic for the Koreans. Thus the type α and especially the type ε are the fundamental types of the Koreans. The type γ of the lower left square is always very numerous so that I consider it as a fundamental type too. At the same time the type β is in a very limited number and can be considered as an incidental type. Also the type δ shows only traces of its presence and it seems to me that these can be considered as the variations of type ε.

The results of the analysis of the correlation of the stature with the nasal index are shown in the following Table:

Groups of	Fundament. type	Incidental type	Trace of type	Approximate characteristics of the types		
				Type	Stature	Nasal Ind
Shantung	α β ε	γδ	...	α	159	95
Chihli..	α β γδ	(β)	ε	β	169	75
Manchuria...	ε γ β	α	δ	γ	159	75
Manchus	γ β	α	...	δ	175	100
Koreans	α ε γ	β	...	ε	162	110

The type α of the present Table can be considered as an amalgamation of the types ε anc γ, therefore the above results can be simplified as follows:

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TABLE Q

Nasal Index and Stature

$N=81$; $\Sigma ee_1=-970$; $\sigma_x=8.12$; $\sigma_y=5.104$;

$M_{Nas.\ I.}=83.02$; $M_{Stat.}=163.09$; $r=-0.289$; $E_r=\pm 0.047$;

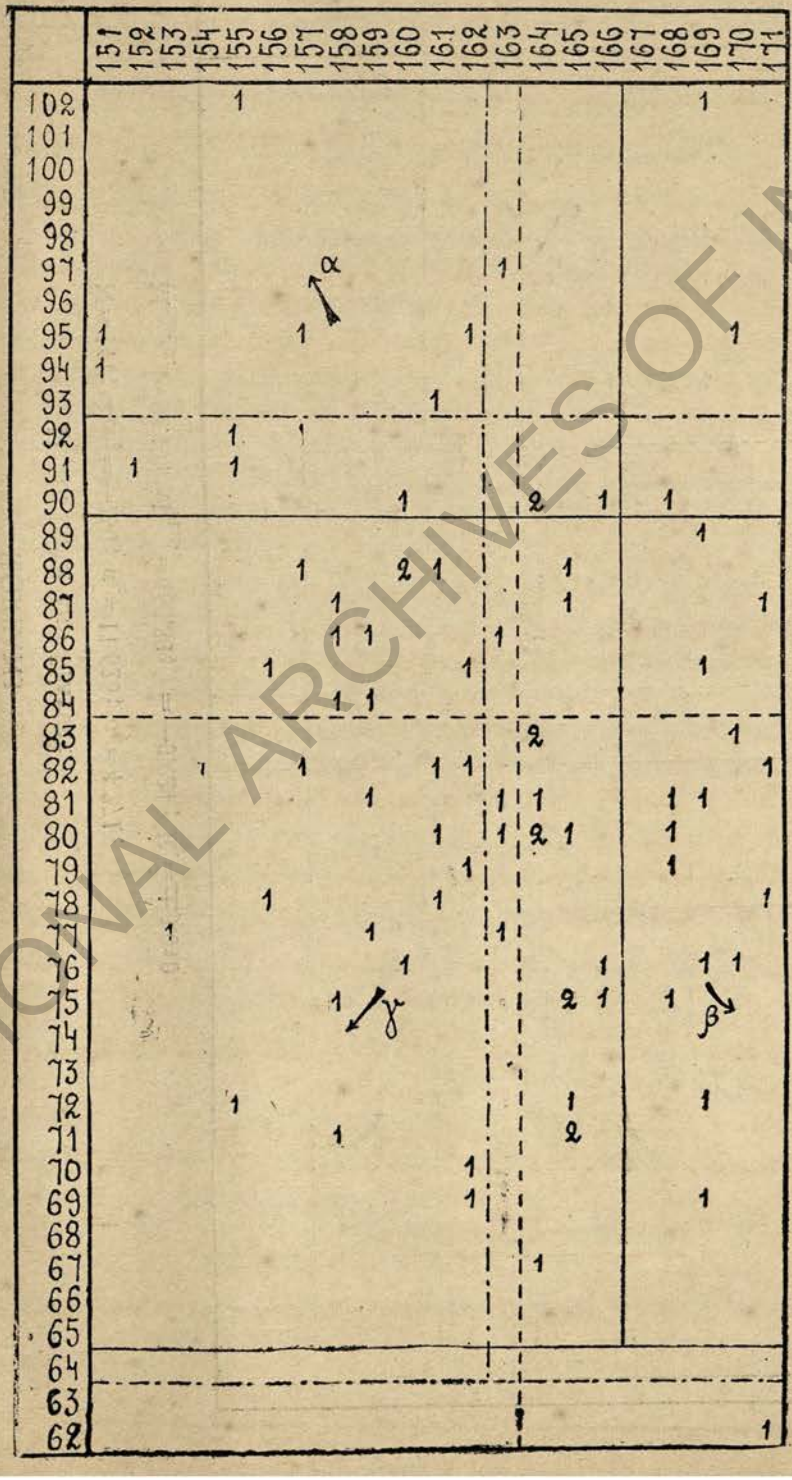

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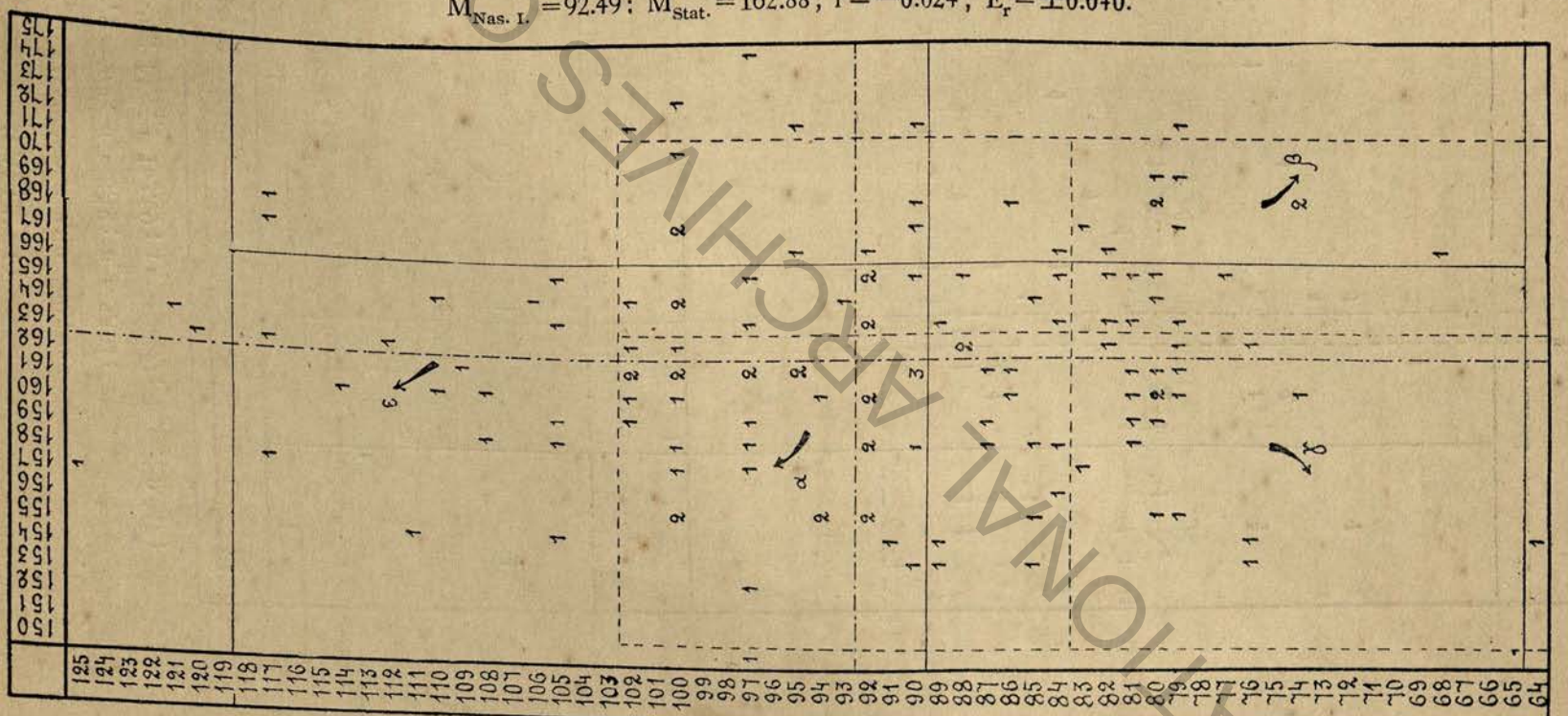
TABLE R

KOREANS

Nasal Index and Stature

$N = 141$; $\Sigma ee_1 = -190$; $\sigma_x = 11.626$; $\sigma_y = 4.771$;

$M_{Nas.\ I.} = 92.49$; $M_{Stat.} = 162.88$; $r = -0.024$; $E_r = \pm 0.040$.



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Groups	Fundamental type	Incidental type	Trace of type
Shantung	β ε	δ γ	...
Chihli	δ γ ($\varepsilon\beta$)	(ε β)	...
Manchuria...	ε γ β	...	δ
Manchus	γ β	ε	...
Koreans	ε γ	β	δ

§45. Nasal Index and Other Characteristics of the Typic Differentiation.

In the preceding §§ 43 and 44 I have analyzed the types in the field of correlation of the nasal index with the cephalic index and on the other hand of the cephalic index with the stature, now I shall show when the results of this analysis can be connected with that of the correlation of the nasal index with the stature.

From the Table on p. 72 can be seen that (1) the type *a* is characteristic for the Chinese only; (2) the type *b* is characteristic for the Chinese of Shantung and Manchuria and the Manchus too; (3) the type *d* is characteristic for the Chinese of Chihli and Manchuria and for the Manchus; the type *c* is characteristic for the Chinese of Chihli and can be observed among the Manchus; (5) the type *e* is characteristic for the Koreans only and can be observed to a limited extent among the Chinese of Manchuria. Thus it can be supposed that the types *a* and *b* are probably the characteristic types of the Chinese, the type *e* is characteristically connected with the Koreans, the type *d* is connected with the Chinese and Koreans and the type *c* is connected with the Chinese and Manchus.

From the above Table it can be seen that the type δ is characteristic for the Chinese and corresponds to the type *d;* the type β has about the same meaning as the type *b;* the type γ is more characteristic for the Manchus and for other groups except the Chinese of Shantung; finally the type ε is among all groups, but it is characteristic for the Koreans.

The following comparative Table can be traced:

Ceph. ind.	Type	Nas. index		Type	Stature		Type	Ceph. ind.
84	*d*	100	100	α	1590	1620	A	83
75	*a*	110	100	δ	1750	1750	B	75
84	*b*	75	75	β	1690	1690	D	85
75	*c*	75	75	γ	1590	1590	C	77
90	*e*	110	110	ε	1620	1570	E	89
Correlation of the ceph. ind. with nas. ind.			Correlation of the stature with nas. ind.			Correlation of the stature with ceph. ind.		

From this Table the following approximate characteristics for the hypothetic types can be formulated:

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Type	Complex	Ceph. ind.	Stature.	Nas. ind.
A	$Ba\delta$	75	1750	105
Δ	$Db\beta$	85	1690	75
Γ	$Cc\gamma$	76	1590	75
B	$Ee\varepsilon$	90	1600	110
*	Ada	84	1600	97

Note to the Table.

The characteristics are approximate. By * I noted the amalgamated complex that cannot be considered as a fundamental type of this area.

From this table may be seen four types:—A, Δ, Γ, and B. The complex Adα I consider as a product of the amalgamation of the type Γ and B. In the conclusion of §42 I have supposed the probable ethnical connection of these types. There the type B was considered as a Chinese type. The complex $Ba\delta$—type A—can be also considered as a Chinese type; The type D was connected with the Mongols, also the complex $Db\beta$—type Δ—can be considered as a Mongol type. In fact the Mongols, being an amalgamated ethnical group, have relatively low nasal index, the extreme variations of which correlate the high (relatively) stature. Among the mongolized Tungus of Urulga the type Δ has nasal index about 75.

In §42 I have formulated that the type C can be considered as a very ancient type in Asia which composes now different ethnical groups. The nasal index of the complex $Cc\gamma$ —type Γ—is about 75, that may be seen among the Tungus of Barguzin.[1] The real stature of this type, I suppose, must be lower than 1590 because this type among the Chinese is always influenced by the type of the high stature (A and Δ) and extreme variations of it may be confused.

The type E was related to the Koreans (palaeoasiatic). The complex $Ee\varepsilon$—type B—has the nasal index very high, this can be seen also among the Gilyaks. As it was above shown the influence of the type B over the Chinese is very large and it is especially significant over the Chinese of Manchuria; that is quite natural because of the near neighbourhood of this group to Manchuria.

§46. Correlation of the Cephalic Index with Frontal Index.

(See Table S).

The low negative coefficient of correlation ($r = -0.062$; $E_r = \pm 0.024$) shows that the Chinese from this standpoint they are as well as inother characters very amalgamated. The negative sign is due probably to the presence of a group with low cephalic index and high frontal index within the lower right square. But the numerical value of the coefficient is so low that it cannot warrant other deductions. Therefore, I shall analyse by the method of the superimposition of the fields.

1. M—stature = 1591, M—nas. i. = 86.70, r = +0.08.

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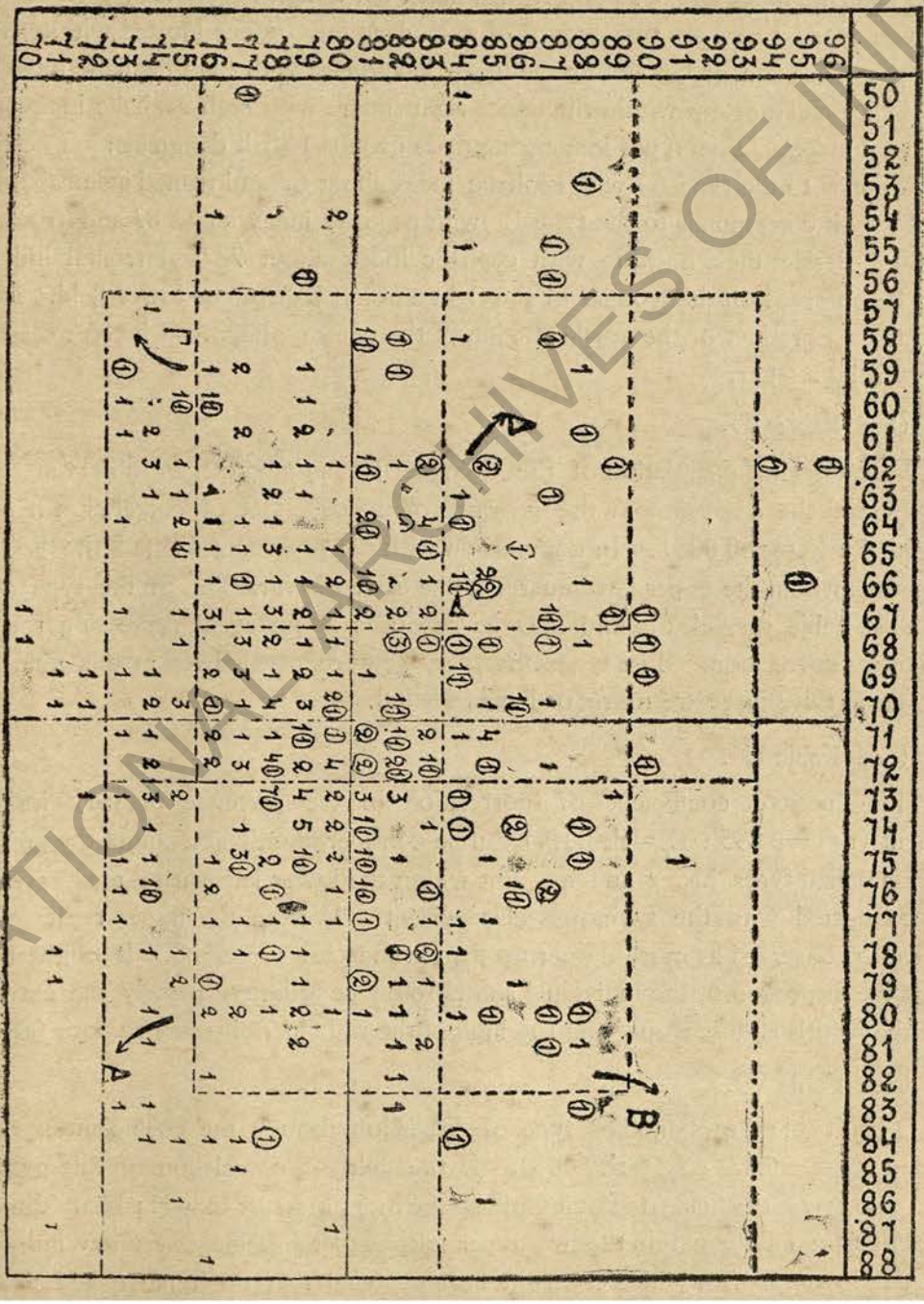
TABLE S

Cephalic Index and Frontal Index

[*Figure in Circle : Chinese of Manchuria*]

$N=389$; $\Sigma ee_1=-752$; $\sigma_x=4.507$; $\sigma_y=6.948$;

$M_{Ceph.\ I.}=80.17$; $M_{Front.\ I.}=70.62$; $r=-0.062$; $E_r=\pm 0.024$.



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In the field of correlalion the most numerous group of the Chinese of China Proper lies within the lower right square, i.e. of the individuals with low cephalic index and high frontal index. The type with cephalic index about 75 and frontal index about 80 that influence this group I shall designate by q (it corresponds to the type A). Within this square can be distinguished a group with low cephalic index and very high frontal the corner of the index in field. Within the lower left square can be observed another important group characteristic for the Chinese of China proper. The hypothetical type with the cephalic index about 75 and frontal index 60, I shall designate by p (it corresponds to the type Γ). There are two groups of secondary importance located within the upper half of the field; the group within the upper left square with high cephalic indexand low frontal index and a group within the upper right square with high cephalic index and very high frontal index. The types influencing these groups I shall designate: The first by r (it corresponds to the type Δ) with cephalic index about 87 and frontal index about 62, the second by s (it corresponds to the type B)with cephalic index about 87 and frontal index about 80. Besides these a group with cephalic index about 73 and frontal index about 69 can be observed on the frontier of the right and left half of the lower field. I consider this group as a product of the amalgamation of the types q and p. Therefore, I shall not designate it by a letter.

(See Table T).

In the field of correlation of the Chinese of Shantung can be observed about the same type of the dispersion in the presence of a coefficient of correlation near to ±0 ($r=+0.007$; $E_r=\pm 0.035$). In comparison with the preceding Table S the type r is not so numerous within the upper left square. The extreme variations of the type q can be seen in this Table very clearly and may be supposed as an agent decreasing the positive coefficient of correlation. The type s has very few representatives in this field and the individuals in this square are more or less incidental.

(See Table U).

The positve coefficient of correlation in the presence of very insignificant coefficient ($r=-0.095$; $E_r=\pm 0.044$) can be considered only as a hint of the presence of two fundamental types, i.e., r and q. But within the lower left square the presence of a group connected with the type p is also evident. Within the upper right square the type s can be observed as more numerous than in the case preceding. It might be noted also that the dispersion of the individual shows some peculiarity, namely the extreme left part of the field is almost empty and the limit of the right part is more remote (Range 87)

(See Table V).

This Table shows another type of dispersion though the coefficient is not more significant ($r=-0.072$; $E_r=\pm 0.048$). If the field of correlation of this group were superimposed over the field of Total Chinese the main mass of individuals of the Chinese of Manchuria would be within the two upper squares of the field. Very few individuals lie within the lower half, whence it might be concluded that the types q and p are quite incidental. But the groups within the upper left square corresponding to type s so numerous that they have caused the negative sign of the coefficient. Also the type s has ts representatives though its extreme variations cannot have place in this field.

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TABLE T

CHINESE OF SHANTUNG

Cephalic Index and Frontal Index

$N=182$; $\Sigma ee_1=+35$; $\sigma_x=3.744$; $\sigma_y=6.855$;

$M_{Ceph.\ I.}=78,51$; $M_{Front.\ I.}=70.77$; $r=+0.007$; $E=_r\pm 0.035$.

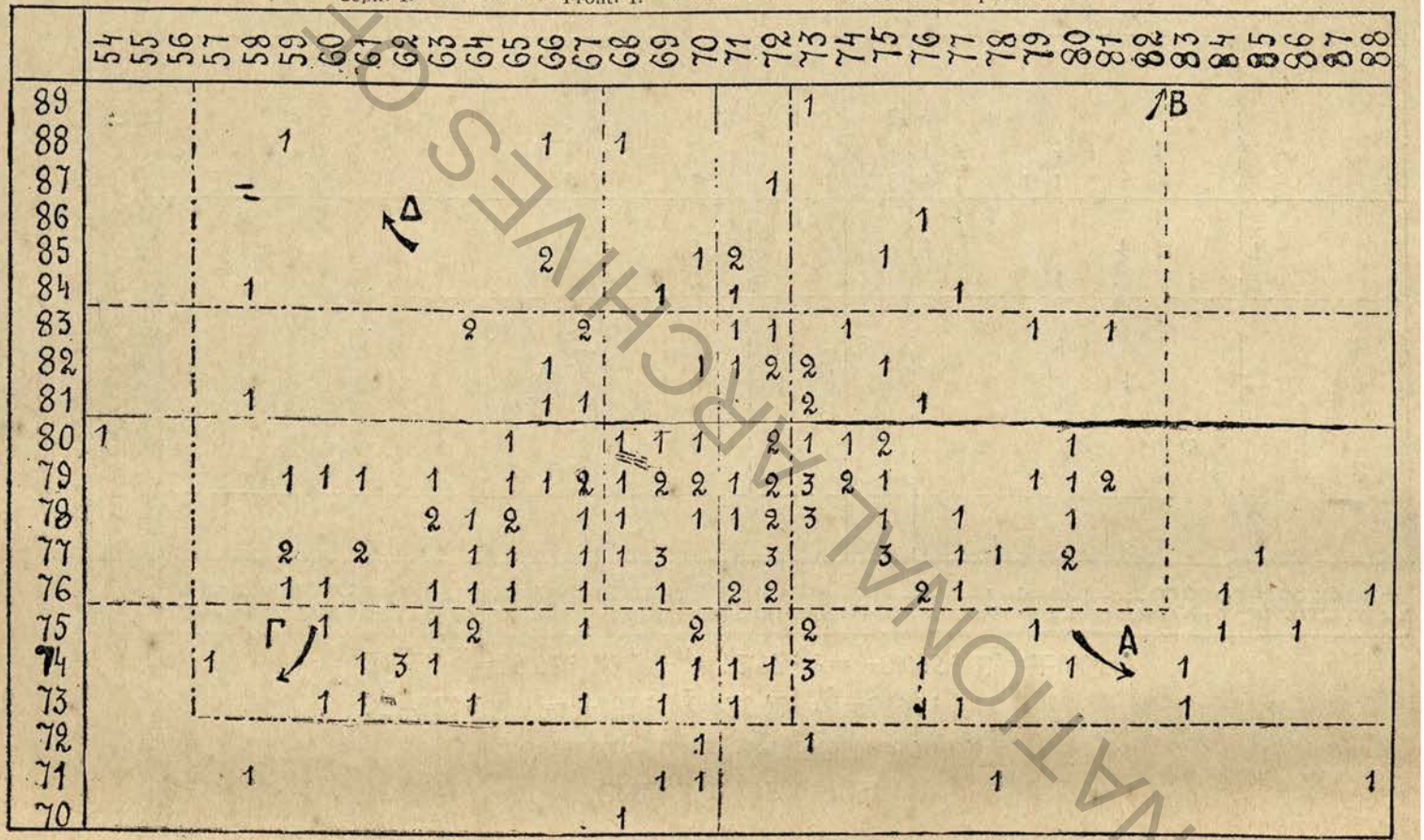

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TABLE U

CHINESE OF CHIHLI

Cephalic Index and Frontal Index

$N = 112$; $\Sigma ee_1 = -251$; $\sigma_x = 3.742$; $\sigma_y = 6295$;

$M_{Ceph.\ I.} = 79.92$; $M_{Front\ I.} = 71.97$; $r = -0.095$; $E_r = \pm 0.044$.

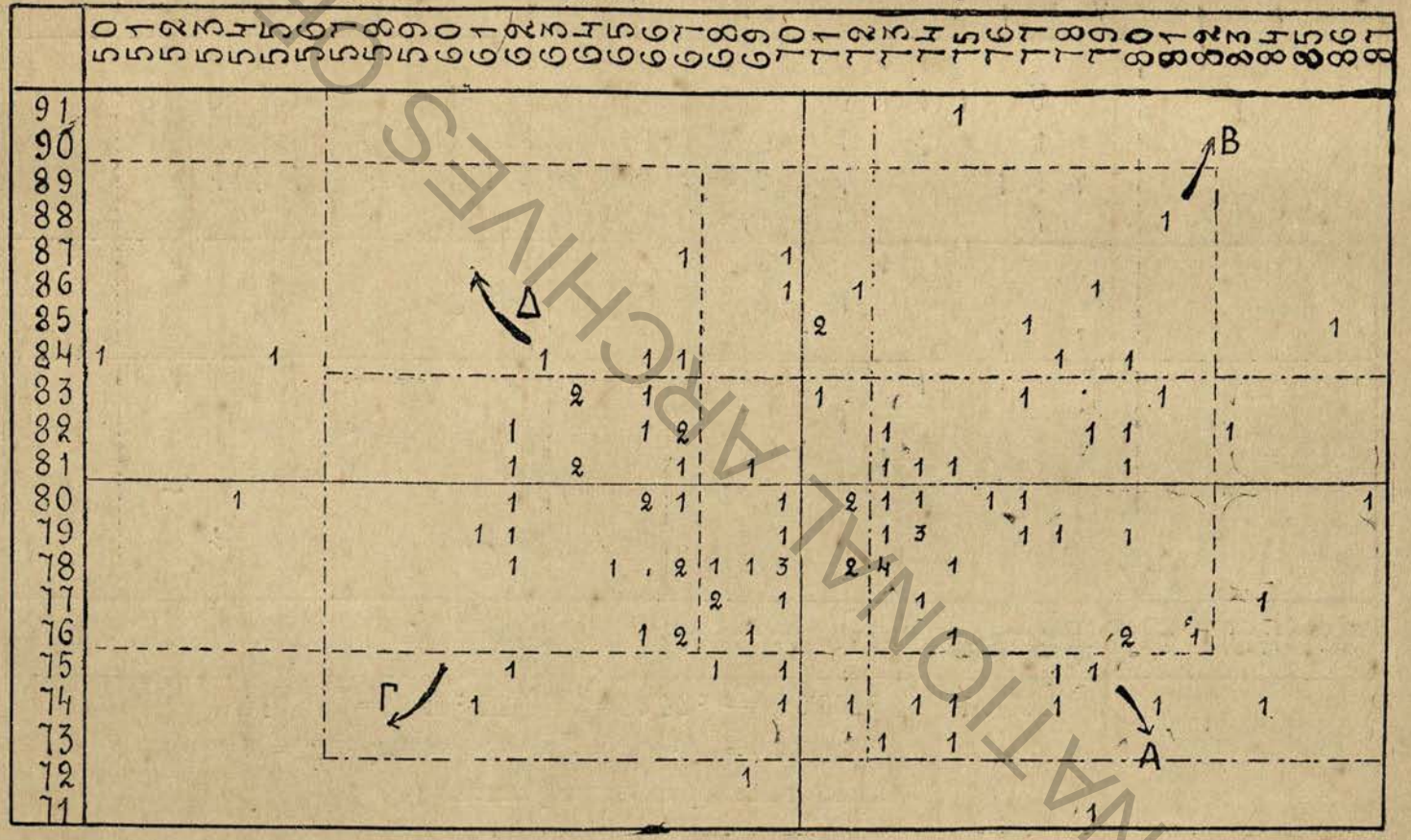

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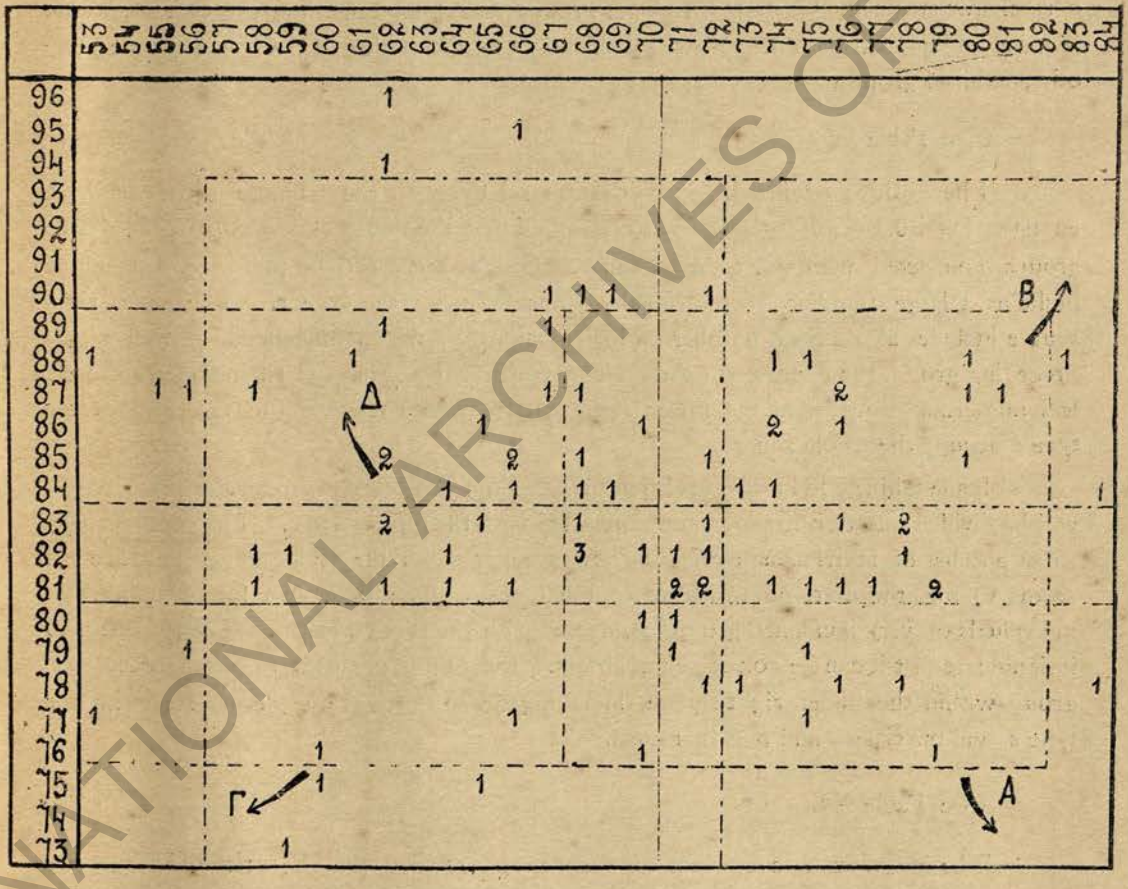
TABLE V

CHINESE OF MANCHURIA

Cephalic Index and Frontal Index

$N=96$; $\Sigma ee_1=-215$; $\sigma_x=4.489$; $\sigma_y=7.110$;

$M_{Ceph.\ I.}=83.64$; $M_{Front.\ I.}=69.78$; $r=-0.072$; $E_r=\pm 0.048$.



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The results of this analysis can be shown in the Table below :

Groups of	Fundamental tyye	Incidental tope
Shantung	q and p	s and r
Chihli	q and s	p and r
Manchuria...	r and s	p and q

Thus all these types are fundamental for some Chinese group, but the type q is characteristically Chinese (of China Proper). At the same time the types r, s and p have limited distribution. Now I shall show the distribution of the above types among other ethnical groups.

(See Table W).

The positive coefficient of correlation relatively to the Chinese groups is high enough ($r=+0.188$; $E_r=+0.039$) to conclude that the Koreans are composed of two groups connected with the types p and s. Besides these groups the upper left square includes a large number of individuals connected with the type r. The lower right square includes also a great number of individual cases, which influenced, as well as the preceding group, the decrease of the positive coefficient. This square includes always a less numerous group than the upper right square, where the extreme variations of the type s occupy the whole square.

If the Chinese field of correlation be superimposed on the Korean field the Koreans will be divided into two main groups connected with the types s and r. The comparatively small number of individuals within the lower squares (of the Chinese field) includes, it seems to me, the extreme variations of the types s and r or a very limited number of individuals of very incidental groups connected with the types q and p. The last one is so insignificant that it can be considered as absent. Thus the Koreans have their characteristic group within the upper right square, including 56% of the series, connected with the type s, and the types r and p as incidental.

(See Table X).

The insignificant coefficient of correlation ($r=+0.015$; $E_r=\pm 0.055$) does not permit making any deduction, but the dispersion of the individuals is very clear if this field be superimposed on the Chinese field of correlation. In fact, the square characteristic for the Koreans—the type s—includes 26% of the Manchus, but the main mass of them, namely 62%, lies within the upper right square connected with the type r. Thus the type r is characteristic for the Manchus and the type s is incidental. Very few representatives of the type p can be noted in the Manchu field. It might be supposed with some probability that the type p generally influenced by the Manchus in the sense of the development of the cephalic index in reality must be more developed and located in the field within the lower left square of the Manchu field, but outside the Chinese lower left square.

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TABLE W

KOREANS

Cephalic Index and Frontal Index

$N=140$; $\Sigma ee_1=+759$; $\sigma_x=4.154$; $\sigma_y=6.742$;

$M_{Ceph.\,I.}=83.69$; $M_{Front.\,I.}=72.87$; $r=+0.188$; $E_r=\pm 0.039$.

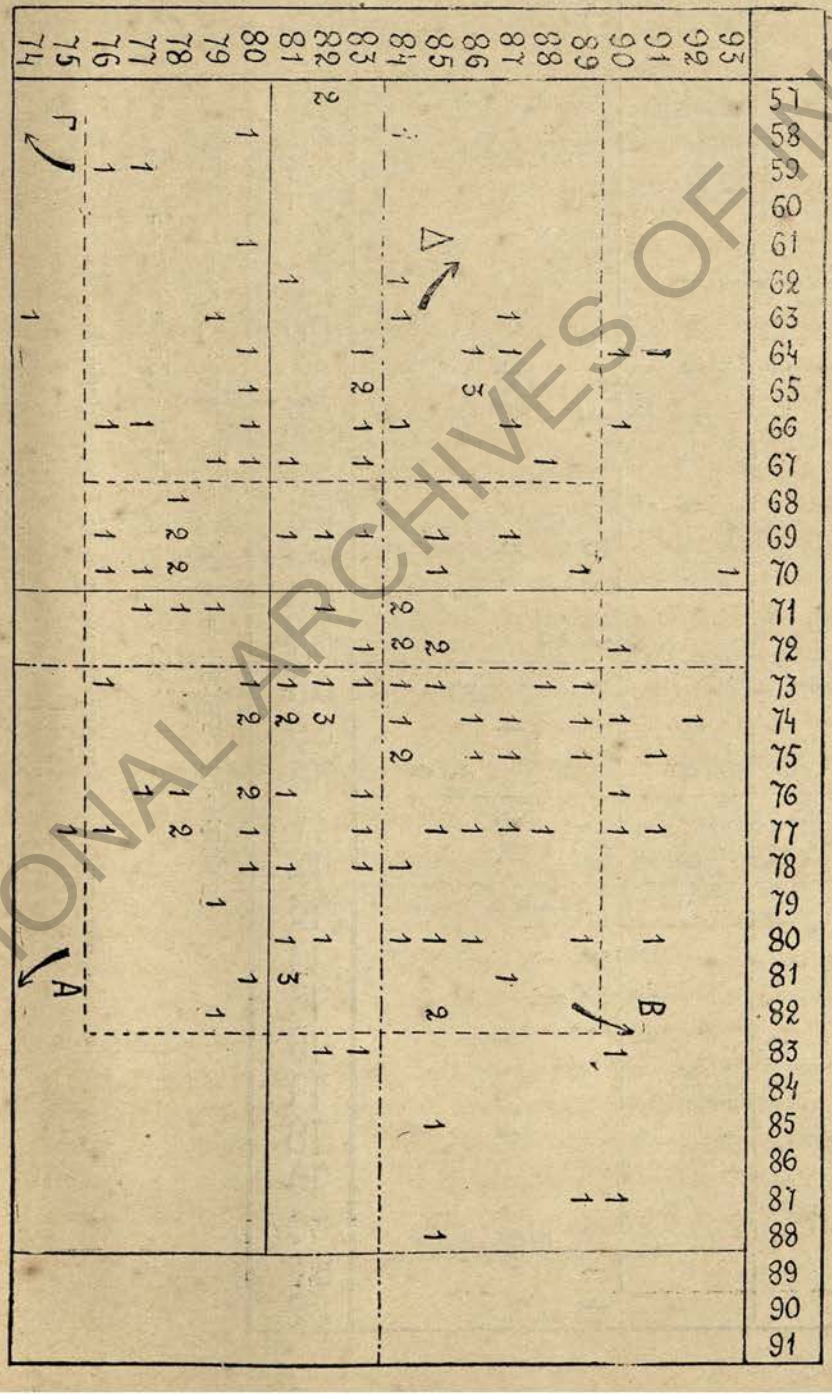

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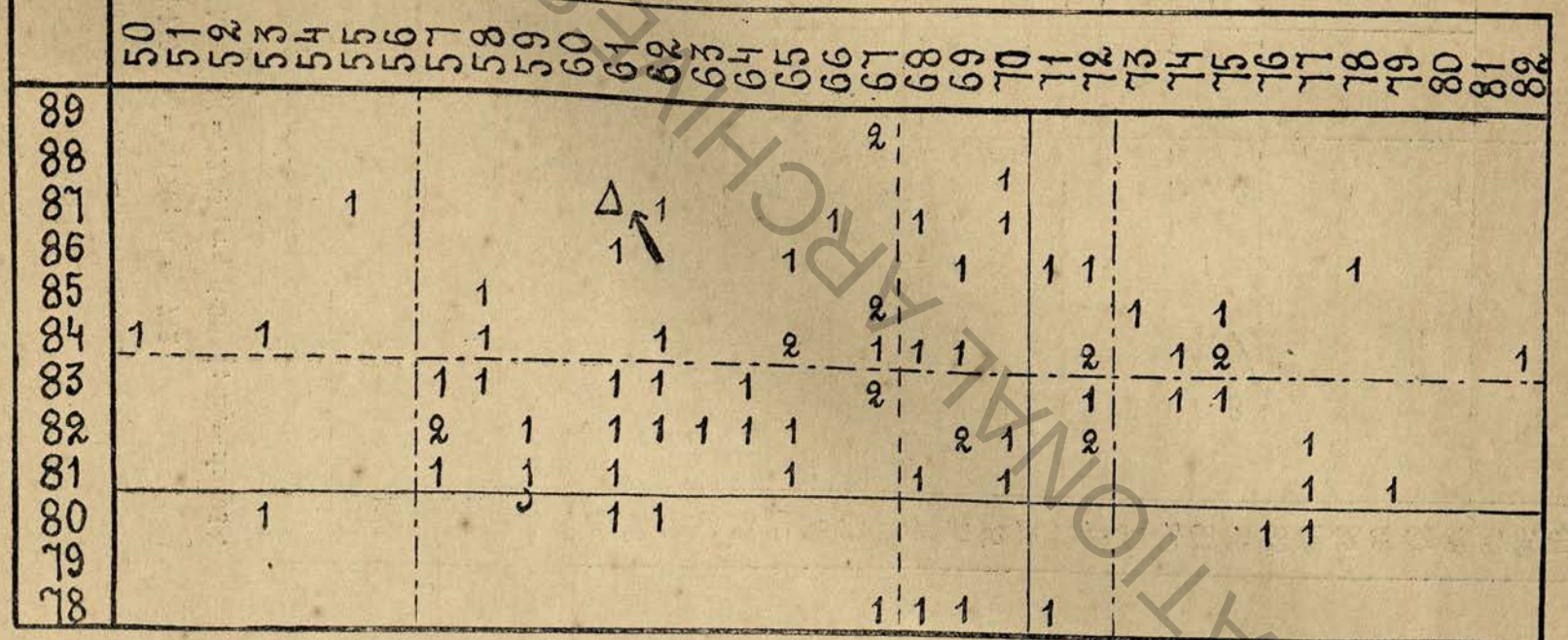
TABLE X

MANCHUS

Cephalic Index and Frontal Index

$N=75$; $\Sigma ee_1=+20$; $\sigma_x=2.652$; $\sigma_y=6.536$;

$M_{Ceph.\ I.}=83.52$; $M_{Front.\ I.}=67.08$; $r=+0.015$; $E_r=\pm 0.055$



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The results of the preceding analysis can be formulated as follows:

Groups of	Fundamental type	Incidental type
Shantung	q and p	s and r
Chihli	q and s	p and r
Manchuria	r and s	p and q
Manchus	r	s and p
Koreans	s	r

The above distribution of the types does not differ significantly from the distribution observed in the preceding exposition. Thus the type q, characteristic for the Chinese, can be related to the type A, also the type s, connected with the Koreans, can be related to the type B, the type r to the type Δ, and the type p to the type Γ[1].

I shall not give the further analysis of the correlation of the frontal index with the cephalic index, nasal index and stature. I shall limit the exposition by showing the correlation of the frontal index with the stature for the Total Chinese series.

(See Table Y).

This correlation in the principal characters does not differ from other fields of correlation. The low coefficient of correlation ($r = +0.022$; $E_r = \pm 0.042$) and distribution of the individuals can be disclosed only by the method I used in the preceding exposition. For example, the correlation of the frontal index and stature of the Manchus (See Table Z) shows the component types very clearly. The coefficient ($r = -0.433$; $E_r = \pm 0.044$) and distribution of the individuals in the field shows doubtless two types, that one type with high frontal index and low stature, which is known as the type B and another one with low frontal index and relatively high stature, known as the type Δ.

The approximate characteristics of these types will be as follow:

Type	Frontal index
A	80
Δ	62
Γ	60
B	82

In fact the Mongols, as can be seen from Table XX have very narrow forehaed, the type common among the Tungus has also a very narrow forehead and the analysis of §15 shows that the Chinese can be characterized by very developed foremost part of the head, that correlates with the open forehead and corresponds exactly to the above exposed characteristics.

1. It is natural that all above analysed correlations show such low coefficients—the amalgamation of the types alike by their cephalic index and frontal index (q and p; r and s) confuse the distribution of the individuals in the field within the positive and negative squares.

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TABLE Y

Frontal Index and Stature

$N = 392$; $\Sigma ee_1 = +360$; $\sigma_x = 6.948$; $\sigma_y = 6.144$;

$M_{Front.\ I.} = 70.62$; $M_{Stat.} = 166.57$; $r = +0.022$; $E_r = \pm 0.042$.

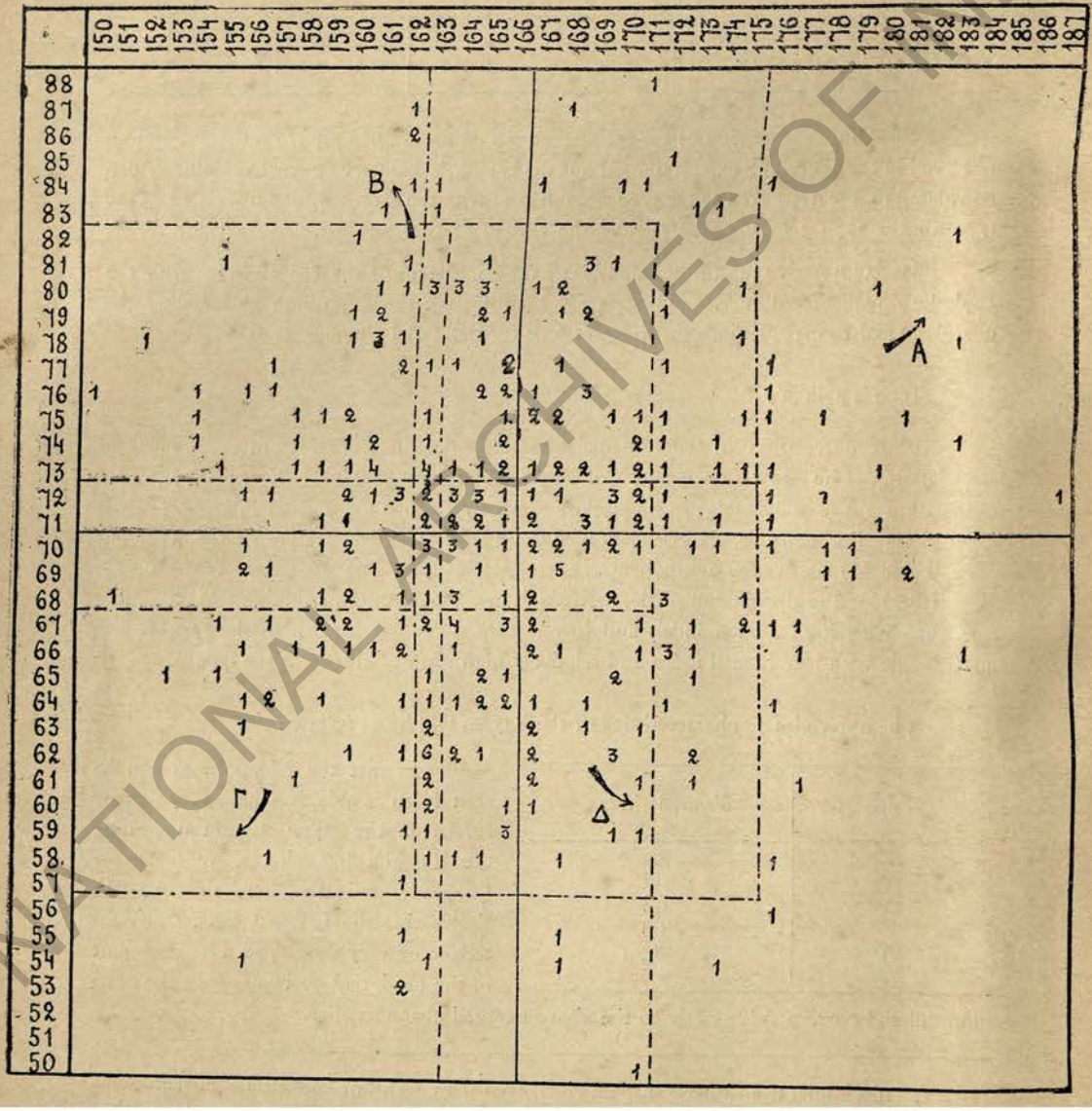

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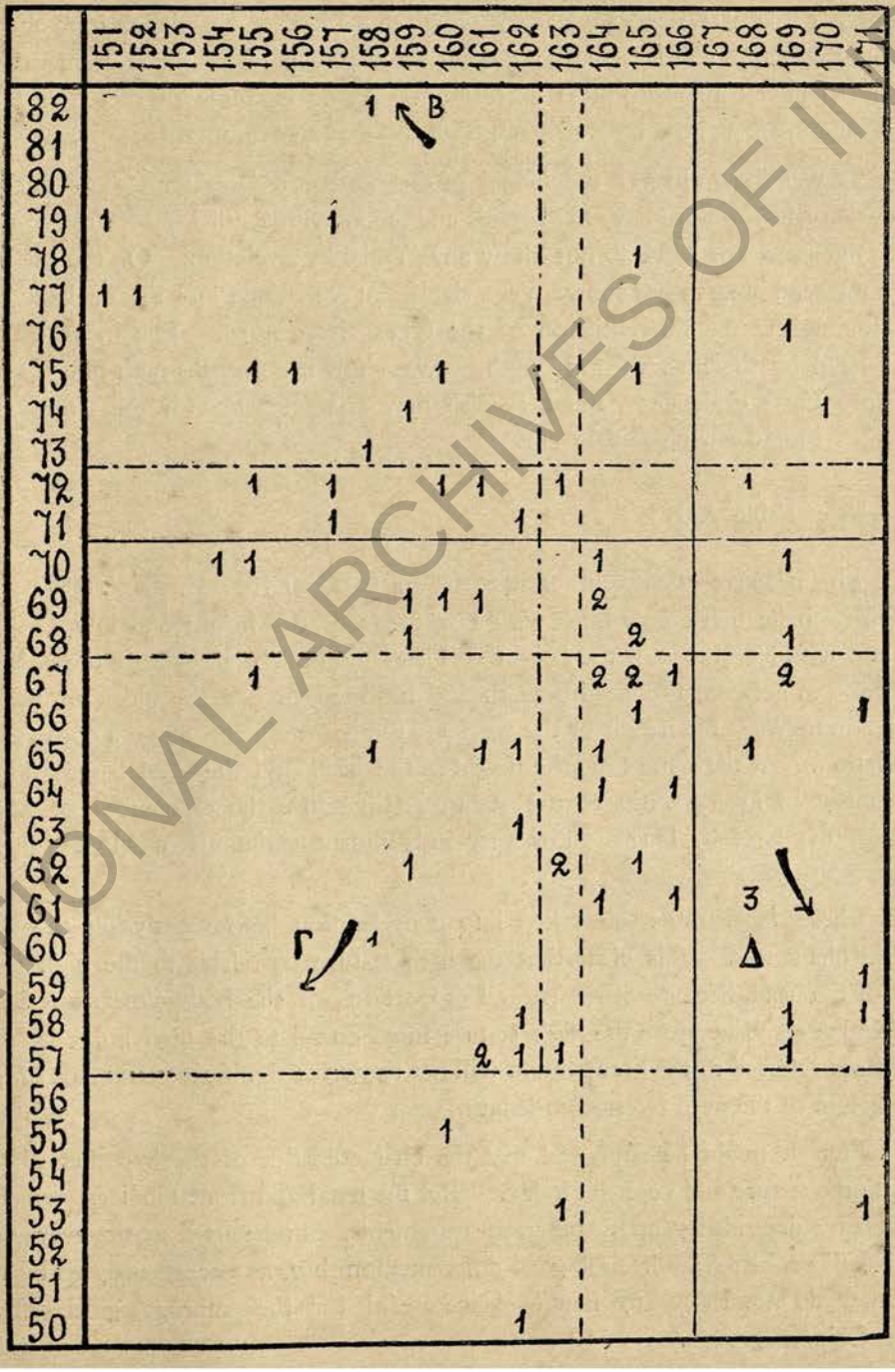
TABLE Z

MANCHUS

Frontal Index and Stature

$N=77$; $\Sigma ee_1=-1111$; $\sigma_x=6.536$; $\sigma_y=5.104$;

$M_{Eront.\ I.}=67.08$; $M_{Stat.}=163.09$; $r=-0.433$; $E_r=\pm 0.044$.



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§47. Other Indices and Measurements Ccrrelated.

As regards other characteristics of these types I shall omit their description and analysis by the method of correlation, because they do not show very significant differences for the Chinese groups or correlate one with other anatomically. The significant differences show only the following measurements: Cephalic index (diff. MM—3.66), frontal index (diff. MM—2.19), nasal index (diff. MM—2.04) and the height of the head by the length (diff. MM—1.76). Other indices do not show the significant differences of MM (See Appendix, Table VIII). I have analysed by the method of correlation four characteristics including the stature and I shall show now a correlation of two measurements connected between them by an anatomical correlation. As an example of this kind I shall take the cephalic index and the height of the head referred to the breadth.

As was shown in §11 the height of the head correlates with the stature, i.e., the individuals of high stature have high heads and the individuals of low stature have low heads and the differences of MM do not show any "racial" correlation. On the other hand the maximum head breadth has shown very significant variations and the cephalic index was put as the basis of the differentiation of the types and groups. The index of the height of the head by the breadth and length, as was shown, correlates with the cephalic index. Therefore these evidences cannot furnish new characteristics for the types, as may be seen from the following Table A1.

(See Table A1).

The negative coefficient of correlation ($r = -0.461$; $E_r = \pm 0.019$), shows that the high cephalic index correlates with low index of the height and low cephalic index correlates with high index of the height. That is quite natural, because the cephalic index is the relation between the head-breadth and head-length and the index of the height is the relation between the height of the head and the head-breadth, that is a component of the first relation. At the same time the height of the head and the head length do not vary significantlly in inverse ratio to the stature. Therefore the differences of MM of the height of the head by length show very insignificant variations of MM. (diff. MM—1.76).

These facts must be taken into consideration before analysiug the correlation of these characters. It is clear that the high stature correlates to the high length and height of the head, because of the natural proportions of the body-dimensions in the case of the Chinese. Therefore the high stature must correlate the high index of the height of the head referred to the breadth and will not show the significant variations of the index of the height of the head referred to length.

Thus it might be supposed that the characteristics of the hypothetical types will correlate the stature and cephalic index. But the nasal and frontal indices, which are not in correlative dependency upon other measurements, can be used as the characteristics of the "racial" or, better, anthropological differentiation, but, as already analysed by the correlation they do not show any new evidence useful for the anthropological differentiation of the Chinese groups.

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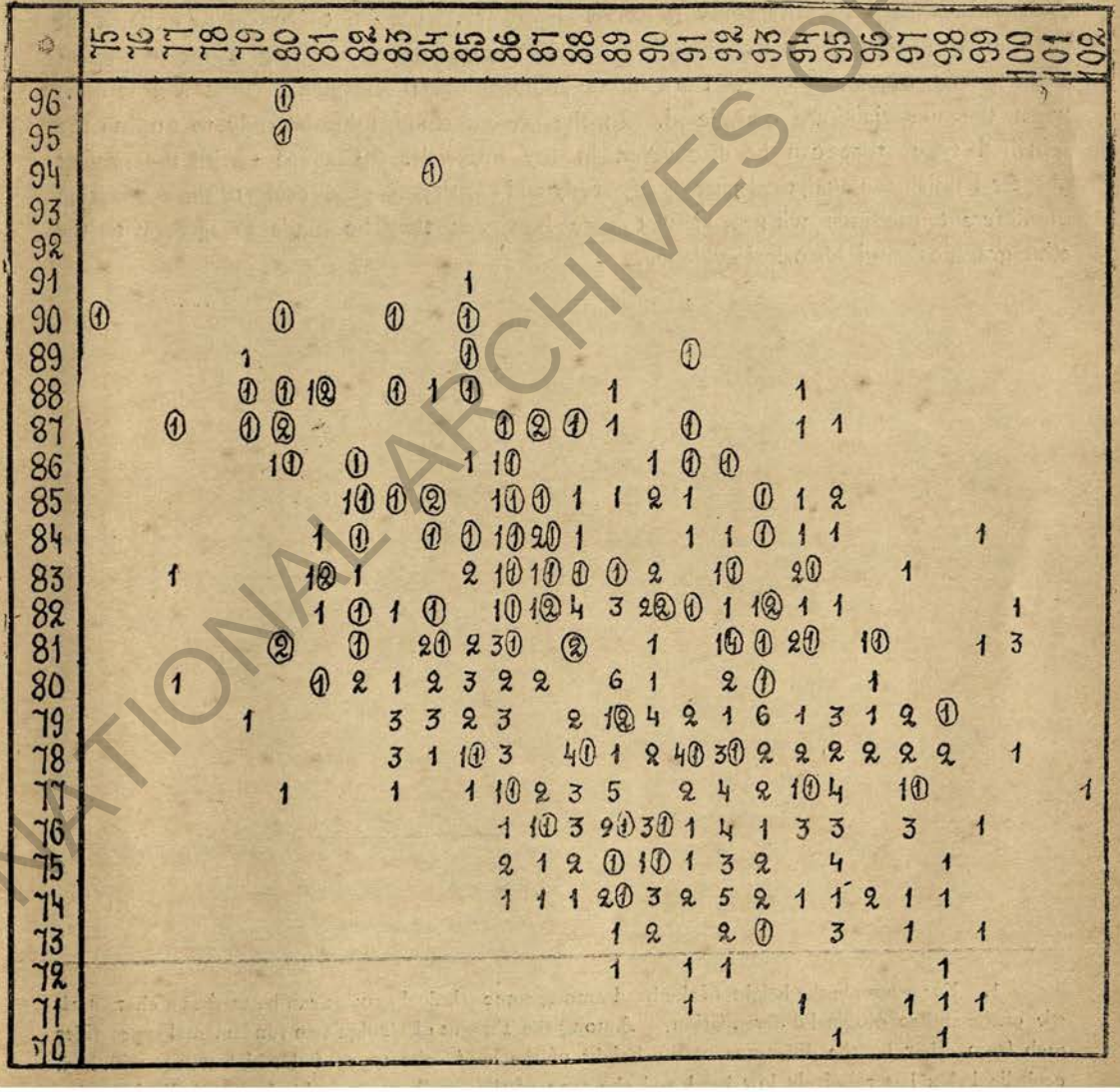
TABLE A_1

Cephalic Index and Index of the Height of the Head by Head Breadth

(Figures in circle: Chinese of Manchuria)

$N = 386$; $\Sigma ee_1 = -4.036$; $\sigma_x = 4.507$; $\sigma_y = 5.033$;

$M_{Ceph.\ I.} = 80.17$; $M_{J.H.B.} = 89.92$; $r = -0.461$; $E_r = \pm 0.019$.



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The facial length correlating the interzygomatical breadth and the facial indices (physiognomical and anatomical) shows very insignificant variations of MM. These indices are connected with the anatomical correlation and not with the anthropological, because the interzygomatical breadth correlates also the breadth of the head, but not so strictly as other characteristics correlated with the stature.

The gonial index does not show the significant differences of MM and correlates almost absolutely the breadth of the face (intezyg. breadth).

Thus the indices and generally all relative measurements, maybe, would furnish some supplementary data to characterize the above described types, and their analysis by the method of correlation and superimposition of the fields might disclose some new characterisics[1], but for my study it is not necessary. I do not pretend to exhaust all the questions arising out my materials and I have no intention to give the complete characteristics of components of the Chinese anthropological complex. That will be done when the materials are completed. In the present study I intend only to outline the principal types that can be discovered in my materials. Therefore with the present chapter I finish the analytical part of my study and I shall revise the results of the application of different methods with a view to see how can they be made to agree with the ethnographical and historical evidence.

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1. For example the height of the head among some ethnical groups can be used as a characteristic of the anthropological differentiation. Among the Tungus of Urulga two fundamental types differ each from other by the difference of the height of the head—the type of the high stature with high cephalic index has relatively low head and the type of the small stature with low cephalic index has relatively high head. The first type I have related to the Mongols. Among the Chinese this characteristic does not show the differences, but it might be that a minutiose analysis of these series from this standpoint would be not fruitless.

CHAPTER V

GENERAL DEDUCTIONS

§48. Comparison of the Results of the Analysis. §49. Types. §50. Geographical Distribution of the types and their Ethnical Equivalents. §51. Type Δ. §52. Type Γ. §53. Type B. §54. The Formation of the Northern Chinese. §55. Conditions of the Forming of the Types.

§48. Comparison of the Results of the Analysis.

In chapter IV, I have concluded that the Chinese of Manchuria show such distinctive characteristics that from some standpoints they are closer to the Manchus and Koreans than to the Chinese of China Proper. Also in chapter III, I have concluded that the difference between MM of this group and MM of the Koreans (in relative measurements) is less than those between the Chinese of Manchuria and Chinese of China Proper. Thus this group was influenced by their neighbours, as I shall illustrate in the following Table:

Groups	Ceph. index and Stature			Ceph. index and Nas. index			Stature and Nas. index			Front. index and Ceph. index		
	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.
Chinese of Manchuria ...	A	CD	E	*bd*	*ae*	...	εγβ	α	δ	rs	(qp)	(qp)
Manchus	A	CD	...	*bd*	*c*	...	γβ	ε	...	r	sp	...
Koreans	AE	C	D	*de*	*b*	*ca*	εγ	β	δ	s	r	...

Note:

F.T. means—Fundamental type.
I.I. means—Incidental type.
Tr. means—Trace of the type.

At a glance it may be seen that the Chinese of Manchuria and the Manchus, also the Koreans, are very close according to their components. In all the cases they have the common fundamental types. The difference between the Koreans and the Chinese of Manchuria consists in the variation of the intensivity of the types. In one case, only namely the case of the Frontal index and Cephalic index the Chinese of Manchuria have two incidental types,—or perhaps the traces of them,—which are not observed among the Koreans. It seems to me that the Manchus are not so amalgamated as other groups under discussion, but they have always the same components as the other two groups. From some points of view they are closer to the Koreans, from other points of view they are closer to the Chinese of Manchuria. Therefore the coefficient of differences between the Chinese of Manchuria and Koreans (coef. $\Delta = 4.780$) and on the other hand the coefficient of differences between the Manchus and Chinese of Manchuria (coef. $\Delta = 5.249$) are lower than the coefficients of differences between the Koreans and

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Manchus (coef. $\Delta=6.498$). This phenomenon may be explained by the presence of the types characteristic of these groups and quite opposite to each other, as are the type B and the types Γ and Δ. At the same time some common types in this table only change their places—among the Manchus they are fundamental and among the Koreans incidental or contrary. From this Table it may be seen also that the influence of the Manchurian enviroment over the Chinese immigrants or colonists is very effective and these Chinese have lost some anthropological characteristics.[1]

The differences of MM of the Chinese groups of China Proper are not so high, therefore the coefficient of differences also are very insignificant, but the real difference between these groups is more significant. These groups are composed generally of the different anthropological types with preponderance of some of them. The fact that these types by their characteristics are opposite and the groups besides include some common types confuse the real meaning of MM. The following Table can illustrate the above proposition:

Groups	Ceph. index and Stature			Ceph. index and Nas. index			Stature and Nas. index			Front. index and Ceph. index		
	F. T.	I.T.	Tr.	F. T.	I.T.	Tr.	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.
Chinese of Shantung	AB	CD	...	*ab*	*cd*	...	βε	γδ	...	qp	rs	...
Chinese of Chihli ...	CD	B	...	*cd*	*ab*	...	γδ(βε)	(βε)	...	qs	pr	...

The degree of the amalgamation with their neighbours is, of course, different and depends not only on the intensity of the influence through the direct contact of these groups but probably also on the ancient amalgamation of the fundamental types now composing these groups. It seems to me that the group of Chihli from some points of view is closer to the Koreans than the group of Shantung. In the field of correlation this might be observed many times. The coefficients of differences seem to prove this proposition. In fact the coefficient of difference between the Chinese of Chihli and Koreans (coef. $\Delta=6.451$; coef. of relative measurements $\Delta=4.724$) is lower than that between the Chinese of Shantung and Koreans (coef. $\Delta=6.709$; coef. of relative measurements $\Delta=6.121$).

Thus the comparison of the results of the analysis by the methods of interserial differences and method of correlation and also the descriptive characteristics show the coincidence of deductions.

In my anthropological analysis I suppose that the individuals which compose a group of only one type show the variations of their characteristics. The coefficient of variation and the standard deviation show the degree of the dispersion and closeness of the main mass of the group with the average type, characterized by MM. If this is so, ithen the amalgamation of two and more types form a majority of the amalgamated individuals and a minority of the pure "race," which are usually located on the periphery

1. Facts of this kind are known already. The influence of the anthropological types characteristic of the local populations over the Jews was so effective that some groups of the Jews changed their anthropological feature. (The opinion of Mr. L. J. Sternberg).

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of the fields of correlation. The characteristics of these types in ciphers may be, of course, defined with a very relative exactness.

§49. The Types.

The anthropological types and their characteristics which I have outlined in ciphers cannot be considered as final. I suppose that the extreme variations of some types cannot be observed in some series only because they were influenced by other types. For example the type E, numerous representatives of which may be observed among the Chinese of Chihli and Manchuria, is more distinguishable among the Koreans as a fundamental type, where, and not among other groups, it has its extreme variations. The same phenomena may be observed relatively to the types Δ and A. The extreme variations of them may be observed among the groups for which they are fundamental and among other groups they become more or less confused, but always distinguishable. Therefore the characteristics in cipher as they are formulated in §45 must be considered as very approximate ones.

The type A,—fundamental for the Chinese,—was characterized by a high stature—1750, low cephalic index—75, high nasal index—100, and high frontal index—80. The extreme variations of this type were noted many times, as distinctly represented. It might be that these characteristics are not exact for the original type and they must be changed, but, I think, the changing can be done only in the sense of the more accentuated differences with other types, as for example: the stature—1800, the cephalic index—70 and so on. Then the characteristics will be, perhaps, closer to the original characters of the type, the main mass of which probably could not resist the influence of the environment. This influence was, of course, in the sense of reducing the original characteristics.

The type Δ, that was observed among the Chinese and Manchus, but very seldom among the Koreans, was characterized by a stature about 1690, cephalic index—85, nasal index—75, and frontal index 62. This type is not very numerous among these groups and is not quite characteristic or fundamental for them, but it may be observed among the northern ethnical groups, namely among the Mongols and Mongolized Tungus of Urulga. It may be supposed that this type must be more accentueted among the groups for which it is characteristic. Unfortunately the published materials concerning the Mongols do not include tables with the individual measurements. Therefore my supposition on the components of this complex can be based only on MM and comparison with the results of analysis of other groups, as for example my series of Tungus. However, it might be supposed that the type Δ must have the cephalic index higher than it is in my above supposition. In fact, the Mongol group of Irkutsk Gov. has cephalic index higher (over 88), the type Δ among the Tungus have cephalic index about 88 and so on. The nasal index of this group may be lower than 75, though the components of this group have the nasal index higher than 75. The frontal index also may be lower than 62.

The type Γ, the incidental character of which among the Chinese and other ethnical groups was observed, has not its extreme variations among the populations of this area. It seems to me that this type can be observed more or less distinctly among the

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Tungus of Barguzin, where it can be characterized by a very low stature (about 1550), low cephalic index (77), low nasal index (77) and low frontal index (65). These characteristics would be more accentuated were it not that other components of this complex vary in the contrary sense.

The type B seems to be represented more largely among the Koreans. Its characteristics must also be corrected. The stature must be lower than it was supposed. In fact the Gilyaks that doubtless include this type in their complex have M of stature lower than 1620. Among them the small stature correlates the high cephalic index and high (of course, relatively) stature correlates low cephalic index. Hence it may be supposed that the type B among the Gilyaks has the stature lower than it was supposed (below 1570). Indeed the result of the analysis of the Koreans and other fields was not quite clear in the definition of the approximate stature of this type, as may be seen from the Table on p. 64. Therefore the stature (1600) must be reduced by some centimeters.

As regards the cephalic index I think it must be about as high as it was supposed, but the nasal index shows some very peculiar characteristic features. The type has very large nose and the high nasal index correlates the concave-flat form of it, as can be seen better from the table below:

TABLE LXIV

THE KOREANS

The nasal index and the forms of the nose,

Form of nose / Nasal index	Aquiline		Straight		Concave		Flat All forms		No data	Total
	N	%%	N	%%	N	%%	N	%%	N	N
110-125	...	...	2	20	8	80	8	80	2	10
100-109	2	7	18	62	9	31	8	28	...	29
90-99	6	18	20	51	7	21	8	24	2	33
80-89	20	44	18	40	7	16	...	...	1	45
64-79	8	47	8	47	1	6	2	12	...	17
64-125	36	27	66	42	32	23	26	..	...	134

This Table shows that the aquiline form is characteristic for the nasal index below 89. This form is characteristic for the type Δ. The type Γ commonly has the straight form of the nose and the type A—concave and straight forms. The type B can be characterized by the concave and flat form of the nose.

The colour of the eyes and hair scarcely varies among the types A, Δ and B and is commonly dark and black. But variations of coloration can be observed among the type Γ. Light eyes and brown, even light, hair are very common. In fact the Tungus and some other ethnical groups which include this type have so great a number of light-coloured individuals that they cannot be considered as the "dark-coloured race" of several authors. Red hair is very rare among all these types, but some red-haired individuals have been observed among the Mongols; those include the type Δ.

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There might also be noted among the populations of the Northern region of this area some peculiar characteristics which were not observed among the Chinese and Koreans at all. The evidence from this region have shown that types Δ and Γ have very long arm and the type that influenced them both has relatively short arm. As has been shown, the types A and B have the arm of moderate length.

The gonial breadth in my study of the Tungus was a characteristic of typical distinction. There the type Δ was characterized by the high gonial index and the type Γ by relatively low index, which gives very definite distinction of the faces. I suppose that these characteristics were not discovered among the Chinese because the types Δ and Γ are not quite fundamental for the Chinese.

The Mongolian eye and the degree of the closeness of the eyes show some variations among the types. It might be noted that these characteristics decrease southward. In fact the Tungus of Barguzin have the closest eyes though the Mongolian eye is not a general characteristic for this group. The Mongols and Mongolized Tungus have very pronounced "mongolian" eye, but it is not so close as that of the Tungus. Among the Chinese the Mongolian eye is very common and correlates, it seems to me, with the low nasal index and high cephalic index and not with the high stature, low cephalic index and so on. The degree of development of these characteristics among the Koreans is lower than among the Mongols and Tungus, but higher than among the Chinese. Thus these characteristics may be related to the types Δ and Γ and partly to the type B.

§50. The Geographical Distribution of the Types and their Ethnical Equivalents.

As has been stated, the type A is especially characteristic of the Chinese, but some influence of it may be observed over the Koreans. The influence of this type over the Chinese of Manchuria is enfeebled by the presence of the type B and others. That is quite natural, because the Chinese of Manchuria during a long time were only a Chinese colony surrounded by a local population very distinct from the Chinese themselves. In fact the active colonization of Manchuria by the Chinese dates only from the XVIII century, though the Southern section of Manchuria and especially the lands around the Pechihli Gulf and Liaotung Peninsula were populated by the Chinese since the Han Dynasty. The Chinese movement eastward and northward was opposed by the local populations and this country was controlled from time to time by different leading ethnical groups.

At the moments of the growing influence of some of these groups they conquered their neighbours. During the change of dynasties and leading ethnical groups the Chinese advanced into the country but they were also pushed out when the leading groups were taking the power. During this long period the Chinese spread their influence many times over the Koreans and other ethnical groups of this area. Successful wars alternate with military defeat. In this way the influence of the Manchus and Koreans over the Chinese was always very effective and finally on this territory was formed an amalgamated population. Of course, this was not a military conquest, but generally the peaceful intrusion of the Chinese amongst the local tribes and of the non-Chinese groups among the Chinese.

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Phenomena of this kind can be observed not only in this territory but also in Siberia. There, for example in Transbaikalia, the amalgamation of the Russian colonists with the local population is so stable that the early Russian population, namely the Cossacks of Transbaikal, now have features more "Asiatic" than "European." Besides, some Mongols and Tungus are now incorporated into the Cossack military organization and have appropriated the Russian tongue. Something like that might take place in Manchuria.

Thus the spreading of the type A might be now observed within the limits of China Proper, Manchuria, where it is of secondary importance, and Korea, where it is not more than incidental. Theoretically it might be supposed that it is spreading in Mongolia too.

§51. Type Δ.

The geographical distribution of the type Δ in this territory, as has been shown, is more intense in Mongolia and Manchuria than in China Proper and Korea. It is fundamental among the Mongols and Manchus and is more numerous on the west than on the east, whence it may be supposed that the present centre of this type must lie somewhere on the west. It may be too, it has no centre at all and is spread in the territory more or less uniformly with other anthropological types. I have supposed it to be connected with the Mongols. In fact this type is common not only among the Mongols proper, but also among the Buriats, Khirgiz, Kalmuks and Yakuts. It is very significant that this type is evidently common among the ethnical groups that are speaking the Mongol and Turkic tongues and among the Mongolized Tungus and Southern Tungus —the Manchus, Goldis and other groups of the basin of the Sungari and Amur Rivers.

The above exposed distribution of this type will be intelligible only if the connection of this type with the Turko-Mongols (that I shall abbreviate as Mongols) is admitted. The Mongol movement eastward, northward and southward left the traces of this type among the populations that do not speak now Mongol. In fact the Mongols become many times the rulers of Manchuria and it is even quite possible that they were the original organizers of the North-eastern states. The struggle of the Turko-Mongols and Chinese must probably be referred to prehistoric times, because during the first millenium B.C. the Chinese were already passively opposing the Turko-Mongol movement and constructed the Great Wall. This struggle must be, of course, preceded by some previous movement—the Turko-Mongols could not become the conquerors of civilized China, if they did not have any military experience and organized army before. Some historians describe the Turko-Mongols as absolutely "barbarous" tribes. This description is taken usually from Chinese sources and is not quite objective. In fact, if the Turko-Mongols were really so barbarous it would not have been necessary to build such a large defensive construction as the Great Wall and to organize an army to stop them. Therefore I think that they were not so "barbarous" and had all the necessary organization to resist the Chinese radiation, but their organization was different from the Chinese system and seemed to the Chinese chronologists "barbarous."

If the Chinese civilization in Asia is really more ancient than any other, it may be supposed that the Chinese first began their movement in all directions and pushed back

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the Turko-Mongols and Tungus, but their spreading was opposed by the native populations. The transfer of the Chinese capital from west to east shows the general direction of their movement. They moved, of course, on the line of least resistance—at that time the Northern population became strong enough to oppose the Chinese movement northward. This opposition of the Turko-Mongols caused the Mongol movement into Manchuria, where they organized the resistance to the Chinese movement eastward. In fact, Chinese documents refer the Chinese invasion of Manchuria and Korea and growing influence over the local population to the first thousand years B.C., i.e., at the time when the Mongols became very aggressive in the northern and western sections. Then they were obliged to spread their influence eastward with a view to stop the Chinese movement eastward and during the last two thousand years the Mongols many times took control over Northern China and Korea. It is therefore quite natural that they left some traces on the local population and the type Δ spread over the territory of present China, Manchuria and partly Korea.

It might be very probably that the original tongue of the type Δ was not the Mongol. This type is common among the ethnical groups now speaking the Turkic dialects. Besides the Chinese written documents which do not furnish exact linguistical classification there is some historical and ethnographical evidence to support this proposition: The Uigurs in VI-VII centuries had their own alphabet, spoke a Turkic dialect and were organized in a state in the Northern part of Mongolia, which supposes, of course, a long historical development before they became able to organize a civilized state. The Yakuts, who speak a Turkic dialect, moved from their Motherland, somewhere about Lake Baikal, to the Siberian steppes in the North, after the Tungus occupied Siberia, which happened in a very remote time. The Kirgiz and the Yellow Uigurs of Koko-nor also speak Turkic dialects. These facts show that the Turkic dialects occupy now the periphery of the Mongol tongue but in the early time they were spoken by the population of the present Mongolian area.

Thus the alteration of the ethnical control in this part of Asia was so intense that the languages were many times changed, the different types amalgamated, and a series of well organized states arose and fell. Therefore it may be very probable that the leading ethnical groups sometimes spoke Turkic dialects, sometimes Mongol or Tungus dialects, but the type Δ survived these alternations.

The influence of this type over the Manchus is quite natural. The Manchus divide themselves into three groups, viz.—Mongol-Manchu, Ancient Manchus and Modern Manchus, so that thay recognize the Mongol origin of some clans, though these clans always speak Manchu. The Goldi of Sungari River, who are considered by the Manchus as Modern Manchus, or "the last incorporated," and speak a Manchu dialect, include the type Δ. They introduced this type among other Tungus groups, with which they maintain very close relations. The Dahurs of some uncertain origin, who speak now a Mongol dialect and were the rulers of Northern China under the name of Khitans or Cathayans[1] include also the type Δ and are connected very closely with the Manchus.

1. Among the Manchu clan names may be noted: Kitan, Tatar, Mongol and some others, which seem to show their close relationship with the tribes of these names.

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§52. Type Γ.

The ethnical origin of this type is more confused. I have noted that the pure representatives of this type may be observed among all ethnical groups, except the Koreans, and it is fundamental for the Tungus of Barguzin, and other Tungus of Siberia. The Tungus from an anthropological standpoint are not homogeneous and represent an amalgamation of different types. For example, the Tungus of Urulga, as has been mentioned, are an amalgamation of the type Δ and the type relatively close to the type Δ. At the same time they show some traces of type Γ. The influence of this type is more significant among the Tungus of Barguzin, which also includes the amalgamated type so common among the Tungus of Urulga. The influence of the type Δ over the Tungus of Yakutsk Gov. is due probably to the Yakuts, who came to their present territory as an already amalgamated group, including the type Δ. Also, I have already shown that the Southern Tungus are amalgamated. As regards the Tungus of Northern Siberia they were influenced probably by their neighbours of palaeoasiatic origin. Notwithstanding these strong influences, the type Γ may be observed, as far as is known, among all Tungus groups.

If it is so, the spreading of this type may be explained by the distribution of the Tungus in this territory and the presence of this type among the Chinese can be explained on the supposition of the former contact of the Chinese type A with the type Γ. In fact the present ethnographical features of the Tungus and the historical deduction which may be formed give some proofs of the southern origin of the Tungus.

The sole possible region of habitation for the Tungus was Northern China, because the Turko-Mongols since early time occupied the Mongolian Plateau ; the basin of the Amur River was populated by the Palaeoasiatic tribes ; and Western China was occupied by the Chinese and other tribes, traces of which can be observed now in Western and Southern China.

At that time when the Chinese were in the west the Tungus were living in the territory of Eastern China, i.e., somewhere in the basin of the Yellow and Yangtse Rivers. Then the Chinese invasion into this region pushed back the Tungus and they went eastward and northward into Amurland, viz., the present Manchuria, also Transbaikalia, Amur Gov. and Maritime Gov. of Siberia. On the banks of the Amur River they met the ancient population composed of the palaeoasiatic tribes who lived there since prehistoric time. This population was comparatively dense and was probably divided into several groups, living by hunting in the forest region, and fishing on the banks of the Amur River. Also in the forest region they perhaps domesticated reindeer. The Tungus could not expel these well organized aborigenes and went through this region into Siberia. During this migration the Tungus appropriated some of the cultural characters of palaeoasiatic groups, but conserved their tongue, clothing, social organization and so on. (See Maps)

In fact the Tungus dialects of Siberia, Mongolia and Manchuria are very developed in the direction of the agglutination of several suffixes together, also the grammar of these dialects is very complicated. Meanwhile, the Southern dialects, as for example the Manchu, from this standpoint are more simplified. The appropriation of new vocabulary, and sometimes of grammatical forms and phonetics show their relatively later origin.

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Though the Yakuts, Mongols and different palaeoasiatic tribes influenced, of course, the Tungus dialects, their tongue remains always intact. In comparison with the dialects of the Southern Tungus (the Manchu, the Goldi dialect and other) the Northern dialects are more pure, independent and developed, but they seem to lose or, may be, to stop the development of the peculiar Tungus characters of this linguistical group. However the Northern Tungus and Southern Tungus recognize the common origin of their dialects and oppose them to the Mongol, Chinese and different Palaeoasiatic dialects. From this it might be concluded that the first Tungus crowd passed through the Amurland and developed independentely their tongue within the northern regions. Meanwhile the later Tungus group stopped within the basin of the Sungari River and formed the Southern branch of Tungus dialects.

The southern type of clothing of the Tungus consist of a very open coat, like the European morning coat and sometimes even like European evening dress; very short trousers partly covering the lower part of body and descending 3-4 inches on the limbs; a small apron covering the breast and body; long garment to protect the knees and lower part of the limbs from the cold; and very comfortable shoes very practical for the forester. This clothing is not adapted to the rigorous climate of Siberia, where the palaeoasiatic tribes invented clothing of special fashion, adapted just for the local climatic conditions. Though the Tungus reformed as well as possible their clothing they always suffer from the frost and wind and perish in great numbers, but notwithstanding conserve its style jealously. Some of this clothing was appropriated by the Chinese and Manchus who combined the long trousers and the long coat of the Mongol and Chinese but conserved for special works and for general use the apron and other Tungus clothing.

The social organization of the paterline system clans was conserved by the Tungus, but the Manchus show many traces of the materline clan organization and have a peculiar social organization, which seems to be connected with the culture of the palaeoasiatc ethnical groups.

The movement of the Tungus northward and westward through Siberia could not be stopped by a very sparse palaeoasiatic population, which was partly assimilated and partly pushed out on the borders of their area by the Tungus.

The Tungus folk-lore relates, that thay had many struggles with this early population and migrated in two different directions. They spread over the whole area and afterwards they were expelled by the Yakuts, who occupied the Middle course of the Lena River. Because of this Yakut migration some Tungus clans went back i.e., eastward and southward, where they lost their reindeer and appropriated the Mongol culture. For example the Tungus clan Samagir moved from Lake Baikal eastward and left its traces along its way to the lower course of the Amur River. This clan populated also the basin of the Shilka River, and the middle course of the Amur River, where it was partly assimilated by the Mongols. Generally the Northern Tungus clans of Manchuria and Mongolia seem to be of a later origin, namely of the second Tungus migration. The migrations of the Tungus may be observed up to the present time. For instance some of the Tungus of the Bureya River basin migrated 10-12 years ago to Saghalien Island, other Tungus group migrated also northward from Transbaikalia. In these cases the immediate cause of migration was the growing Russian colonization or, maybe, the disease from which reindeer generally suffer within the basin of the Amur River.

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The southern branch of Tungus stopped on the banks of the Sungari River which became their "motherland." The neighbouring paleasiatic tribes were partly pushed out, partly conquered by the immigrants. The Manchus call the Milky Way Sungar-bira, i.e., the Sungari River and believe that the Amur River has its sources in Manchuria—the Sungari River. All other memories are related only to this region. They assimilated, of course, some palaeoasiatic ethnographical characters as, for example, the primitive form of fishing, some clothing, underground houses, and, I suppose, some forms of the social organization and so on. The establishment of this Tungus group in Manchuria may be referred to the first and, maybe, second millenium B. C.

This sole supposition can explain the complete lack of knowledge of reindeer breeding among the Manchus. In fact the later migration of the Tungus with their reindeer southward, into Mongolia and Manchuria, resulted in the loss of this animal within this region. But, at the same time it must be considered that the Manchus never lived in northern regions where the climatic conditions are favourable for reindeer-breeding. Therefore I suppose that only the Tungus of the first migration appropriated from the palaeoasiatic tribes of the northern region the reindeer and sledge which are useless in south. Then the second Tungus crowd did not follow the first one and at that early time formed a peculiar ethnographical complex, which existed up to the latest time. Now it is in a state of decomposition under the pressure of the Chinese and partly Russian influence.

The Chinese chroncles do not distinguish the palaeoasiatic and Tungus group and suppose them to be of common origin—various kind of ta-tse.

At the time of the second Morgol movement eastward, the Mongols began to introduce into Manchuria a new anthropological type—the type Δ. Then the various Tungus and Palaeoasiatic tribes amalgamated with the Mongols. The Mongols from time to time established their control over these populations. The alternation of these ethnical groups left its testimony in the history of this region. The formations of organized powers, as Moho, Bohai, Liao Dynasty, Korea, Kin Dynasty, Yuan Dynasty, Manchu Dynasty and so on, opposed more or less successfully during about 2000 years the Chinese invasion into this region. Of course, this movement in view of the Chinese danger was not so smooth and the struggle between the various ethnical groups, as the Mongols, Tungus, and Palaeoasiatics, left many fortified places, trenches and walls stretching hundreds of miles in Manchuria and Mongolia. The remains of large cities and numerous small towns and village also the cemeteries show that in the past some regions of this area were very densely populated by ethnical groups of high civilization. The Chinese evidence on these populations is not so exact as some investigators think and is probably coloured by their quite

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1. According to the Russian travellers in the XIXth century, the so called Maniagir, i.e. a Tungus group including the clan Maniagir and living now within the basin of the Kumara River—the left tributary of the Amur River—in the begining of the last century had the reindeer. They have now only poor recollection of it. At the present time a small group of Tungus—the last coming from Yakutsk Gov.—is losing little by little its reindeer on the Manchuria Plateau.

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natural dislike of enemies not less dangerous and well organized than the Chinese themselves.[1]

By reason of the constant foreign influence the type Γ lost its preponderance among the Tungus. But at the same time it left some traces among the population of China. It may be supposed that these traces are due to the original population of this part of China that were amalgamated by the Chinese. As has been shown, this type is relatively numerous among the Chinese of Shantung. That is quite comprehensible, because they were the first invaders of the present Chihli and Shantung Provinces and they assimilated the native populations of the newly acquired territory.

The Manchus, Tungus by origin, were amalgamated with the palaeoasiatic tribes and afterward superimposed by the Mongols. Therefore this group, conserving up to the latest time its ancient tongue and some ethnographical characters of Tungus origin, could not resist the anthropological influence and little by little lost its original physical feature of the type Γ.

It seems to me that the secondary movement of the northern and eastern ethnical groups into China did not left profound traces on the Chinese population, but the Chinese colonists of Manchuria were influenced by the anthropological environment because they usually came without Chinese women and families. Thus two influences of the type Γ over the Chinese of Manchuria may be considered i.e. one of ancient origin and another one of the present time.

Taking into consideration the very frequent alternation of the ethnical influences, which is so characteristic of the history of this part of Asia, and the preponderance of the Chinese and on the other hand of the Mongols after the Tungus had withdrawn eastward and northward, the insignificant influence of the type Γ can be considered as quite natural.

I submit the above exposed theory of origin of this type only conditionally until a new admissible hypothesis may be elaborated.

§53. The Type B.

As has been presumed, the type B is characteristic for the Koreans. Besides the Koreans, this type has been observed among the Gilyaks and some influence of it has been noted also among the Chinese and Manchus. It was supposed, that it belongs to the original population of Manchuria, Korea and the whole basin of the Amur River.

The Amur River as a great road of this region was always populated by the leading ethnical groups. At the early time it was populated by the palaeoasiatic tribes; during the Mongol control over this region the Mongols left their traces; at the time of first Tungus Dynasty (Kin) the Tungus occupied probably this valley; finally the Manchu colonies were established on the banks of the Amur River and are living there

1. I think that the real value of these group is not yet cleared by the investigations, the major part of which was based on the Chinese document. What results of historical investigations of European nations during, for example, the Middle Age would there be, if the historians used only documents, left to us by one sole nation?

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up to the present time. The alternation of the leading ethnical groups and endless wars between them left several archaeological traces. In fact, all the valley of the Amur River, especially, as far as it is known, in the Middle basin of this River, is covered with the remains of forts, walls, cities and so on. On the skeletons excavated from the cemeteries can be seen traces of arrows and various cutting side-arms. After that it is natural that the original population of this region was finally assimilated and amalgamated by other invaders. Only in Korea this type is largely represented and evidently is a fundamental type. This phenomenon may be explained by the peculiar geographical position of Korea, which is isolated from the rest of this region. First, she is surrounded by the sea, secondly she is by the side of the great highway of migration and separated from it by a mountain chain and forest line. So that relatively passive resistance was sufficient to stop the enemy's attempt. Notwithstanding this isolated state the Koreans themselves from time to time spread their influence outside their territory and were also subjugated by other ethnical groups. Therefore the Koreans, as well as all relinquished biological units show quite peculiar characters.

Other palaeoasiatic groups were dispersed on the territory of Siberia and parts of China, so that very insignificant groups of them are now living on the borders of their former area. The Gilyaks, Chukchee, Yukaghirs and the little tribes on the banks of the Enissy River are the last remains of this brilliant past.

Thus the boundary of the type B is very spacious, but the distribution of this type within it is very sparse. In the past it was probably the sole type within Manchuria and, may be, also within the present Shantung and Chihli provinces. That must be so because the ancient inhabitants of Korea living near the sea must be good navigators. In fact the Koreans some hundreds of years ago were very able navigators and lost this knowledge only because of the political conditions of Korea, as did for example, the Manchus, who were also very courageous seamen.

Besides, the contact between the Koreans and Chinese and the alternation of the Korean and Chinese control over Korea must leave some anthropological traces on the Chinese. As well as the type Γ, the type B among the Chinese can be of ancient orgin and modern origin.

Thus, the type B seems to be the most ancient type located now within limited regions. Lack of osteological evidence from the southern region of the former area of this type does not permit me to be more positive and to trace the approximate boundary of the former distribution of this type.[1]

§54. The Formation of the Northern Chinese.

From the preceding exposition it might be deduced that the Chinese of Shantung, Chihli and Manchuria are an amalgamation, which consists of the various types more or

1. Here I must note that my definitons of the "early" and "ancient" time are, of course, very relative definitions. Might be that further investigations, especially archaeological excavations, will urnish new evidence concerning the palaeolithic man of this area. All the populations under discussion in the present study are known as relatively, to the human existence, modern. The culture of the hypothetical population of the Amur River basin belongs to the later neolithic period. It may also be that the type B of the present study had more limited distribution and was connected with the population of the Far-Eastern coasts only.

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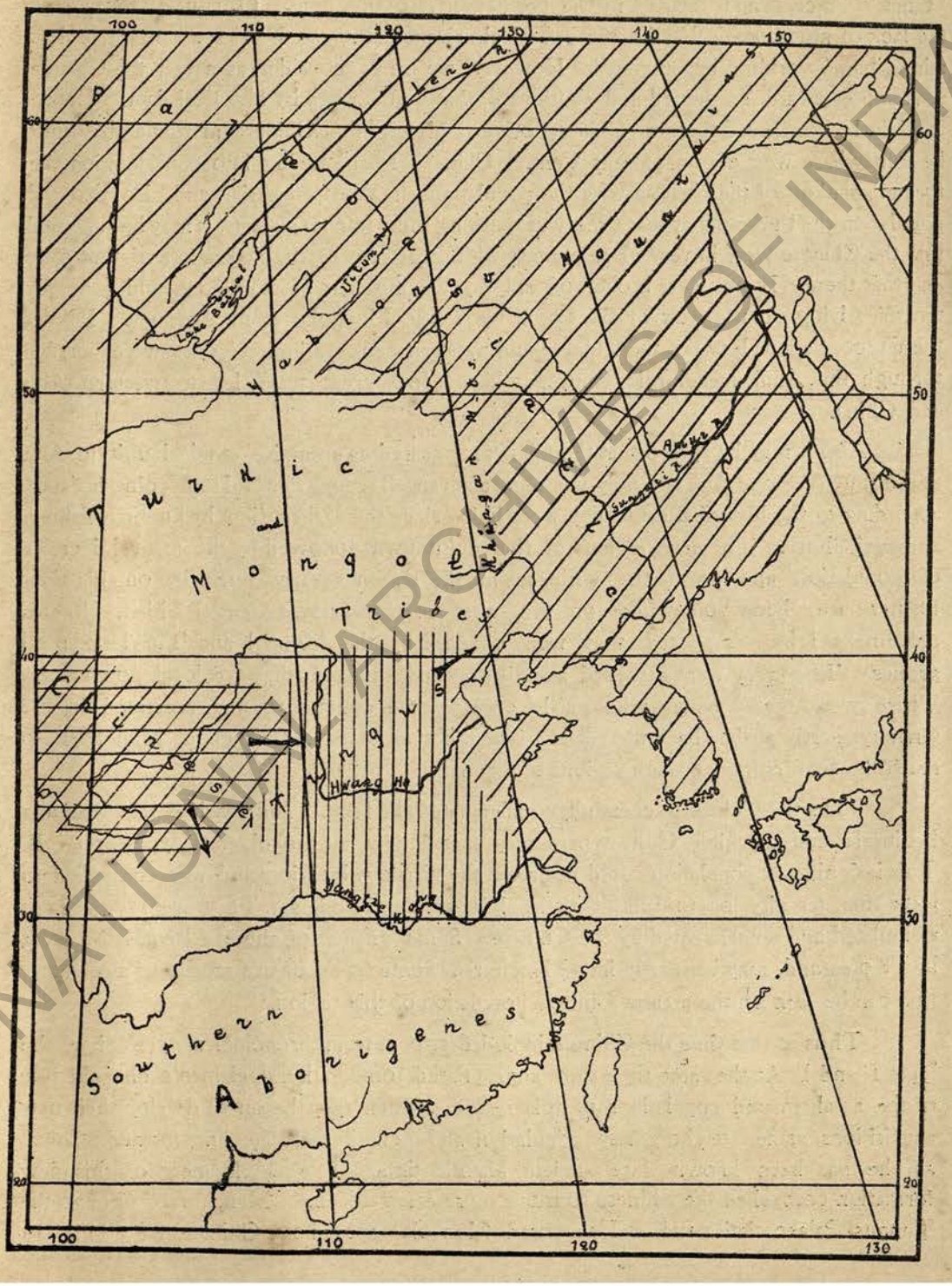
FIRST ETHNICAL MOVEMENT

(About Fourth Millenium B. C.)



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less influencing the fundamental Chinese type A. Now I shall try the whole process of the formation of this Chinese population considering the above exposed ethnical relations.

The original place of the Chinese up to the present time is not yet known. Different theories unsuccessfuly tried to resolve this problem by supposing the non-asiatic origin of the Chinese or by supposing an organic development and differentiation of various "tribes," "races" and "clans" in the present territory of China. Of course, because of the lack of archaeological and anthropological evidence all these theories are more or less admissible "working hypotheses." However we must consider as a fact the Chinese radiation eastward, northward and southward, that was marked by historical data. Hence it might be concluded that the Chinese original place, "the Chinese motherland," must lie somewhere west of the present Central China. Then, taking into consideration the former relations of the Chinese with the populations of Western Asia, and also that the population of Turkestan at that time was speaking Indo-Iranian dialects, it may be supposed that the Chinese were in very close contact with other centres of civilization of that time and that these relations were broken off only by the invasion of Turkestan and generally territoies lying on the west of the China by Turko-Mongolic ethnical groups. Besides the direct relations between the Chinese and western centres, indirect ones were possible through the Altai metallurgic centre, whence two great ways led to western Asia and China.

Also it may be agreed that the Chinese appeared as an active ethnical unit in Asia at the time of Stone Age and they were more advanced from a cultural standpoint, because, according to the historical data, they were living since the earliest time by hunting, fishing, and agriculture. The development of this culture was followed by the natural increase of population and drove the Chinese in the search of new territiries outside their former area lying somewhere on the west of the present Central China. In this movement, I have supposed, they were opposed by the Mongol and Turkic ethnical groups. Then they went eastward assimilating and amalgamating the local populations. These were the Tungus, who partly accepted the conquerors and remained in the territory, partly pushed back the palaeoasiatic tribes and passed throughout Manchuria to reach the semi-empty northern regions of Siberia.

Thus the Chinese successfully amalgamated the type Γ and reached the Shantung Peninsula and Pechihli Gulf, where they met a new anthropological type,—type B. This insignificant population could not resist the vigorous invasion and was compelled to leave the territiry or to submit themselves to the invaders. They were very soon assimilated and amalgamated by the Chinese. Some groups of these palaeoasiatics went into Korea and, may be, partly into Manchuria. Some traces of this process of amalgamation can be seen on the present Chinese population of this region.

Thus at that time the Chinese included two new anthropological types, i. e. the types Γ and B. At the same time they appropriated some cultural elements characteristic of the amalgamated populations of this region. Then they began to develop their new acquisitions, as new territory, new population and new knowledge, and formed China, as she has been known since ancient historic time. The development of this new formation compelled the Chinese to move more eastward, into Manchuria. There the Tungus, Palaeoasiatics and, as I supposed, Mongols opposed the Chinese migration. In

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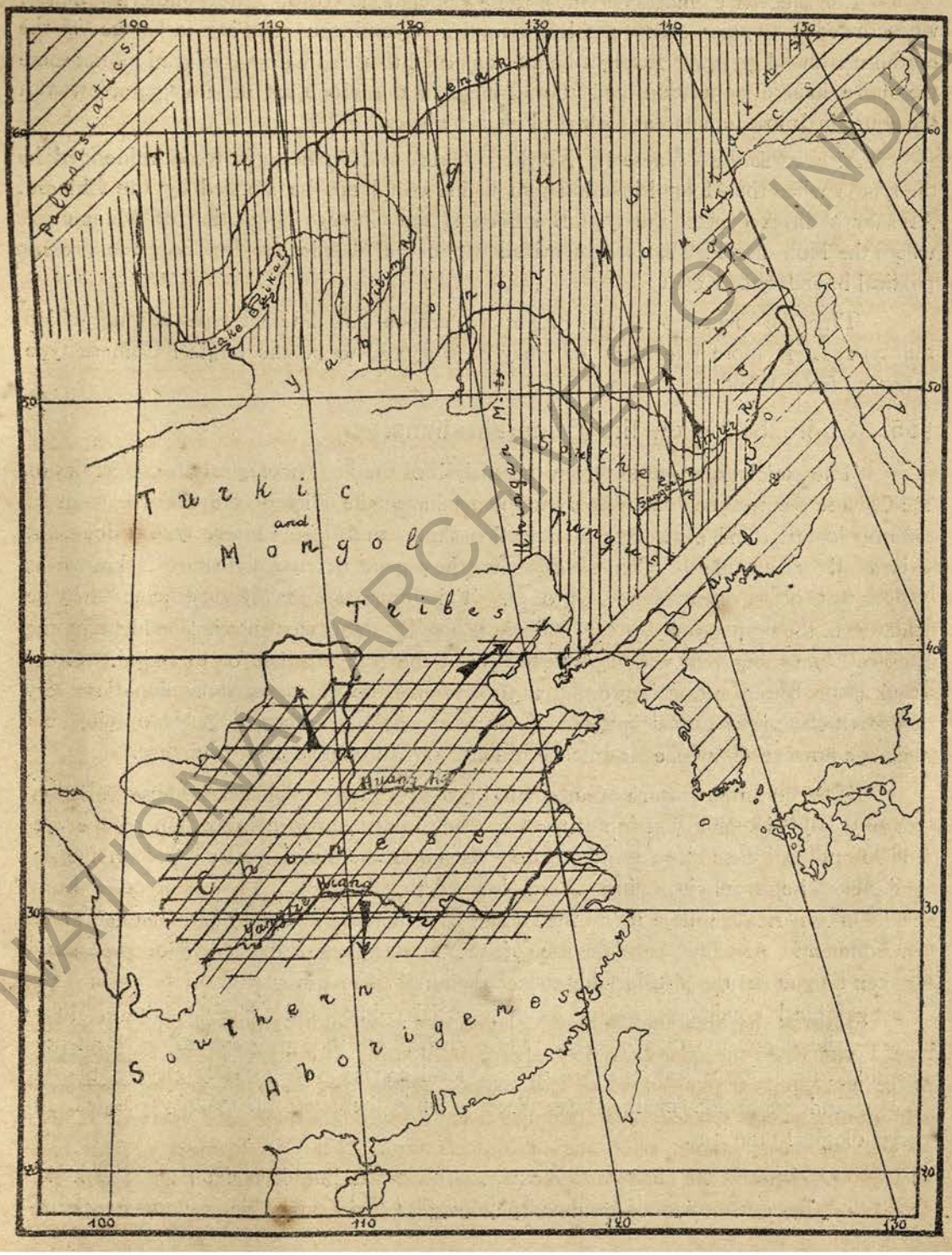
SECOND ETHNICAL MOVEMENT.

(About Second Millenium B. C.)



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a comparatively late period the Chinese spread their colonization southward along the tributaries of the great Chinese rivers and reached there the independent ethnical groups of unknown origin. It might be that some of the native groups of China were pushed by Chinese migration southward and, if further investigations discover the influence of the type Γ, this will support my above suppositions.

The successive amalgamation of these populations formed the Southern Chinese, who created a peculiar ethnographical complex beyond the growing influence of the northern ethnical groups. It might be also supposed that this Chinese migration met some the more intense population and the Chinese in the processes of amalgamation with the aboriginals lost some anthropological characteristics.

Afterwards the Chinese of Northern China and Manchuria were influenced by the type Δ when the Mongol invasion into China could not be stopped by the Chinese. Also, by a direct contact the type B influenced the Chinese population of Manchuria, where the Koreans and Chinese are mixed within the Mukden region, near the present political boundary of Korea

Thus the Chinese of China Proper are composed of different types among which the type A is more numerous and may be supposed to be the original Chinese type migrated from West.

§55. Some Notes on the Generalizations.

The conclusion resulting from the analysis of the anthropological characteristics of the Chinese seems to be contradictory to the opinion on the unity of the Chinese from an anthropological standpoint. My investigation shows that the "Chinese type" does not exist at all; meanwhile the Chinese exist and their general physical feature is known as well as that of European ethnical groups. This impression,—very superficial it may be added,—of the homogeneity of the Chinese is based on the elements independent of the physical, somatologic characters. But this is not the sole example of this kind. Other ethnical, or, better, national, groups, as for example the Russians, show doubtless very mixed characteristics of their physical features and are an anthropological complex, but they are however homoeneous ethnical groups from an ethnological standpoint.

The common feature of an ethnical groups is based on elements whose variations are very easy, viz. the expression of the face, the form of lips, the expression of the eyes and so on. All these characteristics do not depend on the osteologic basis, but on the peculiar exercise of muscles. It has been observed that the British as well as other Europeans in America are subjected to the change of their features and become similar to the environment. Also the peculiar use of the muscles regulating the phonetic of the spoken tongue changes considerably the expre sion of the lower part of the face. The ethnographical conditions, as for example social culture and technical culture, always change the expression of the eyes. More than that, the geographical enviroment—humidity, insolation, elevation above the sea level and so on—probably changes the skin colour and expression of the face, because of its influence on the physiological and psychological functions.

All these factors changing the external feature do not depend on the osteological variations, but on the psychological and physiological variations, which cannot be measured

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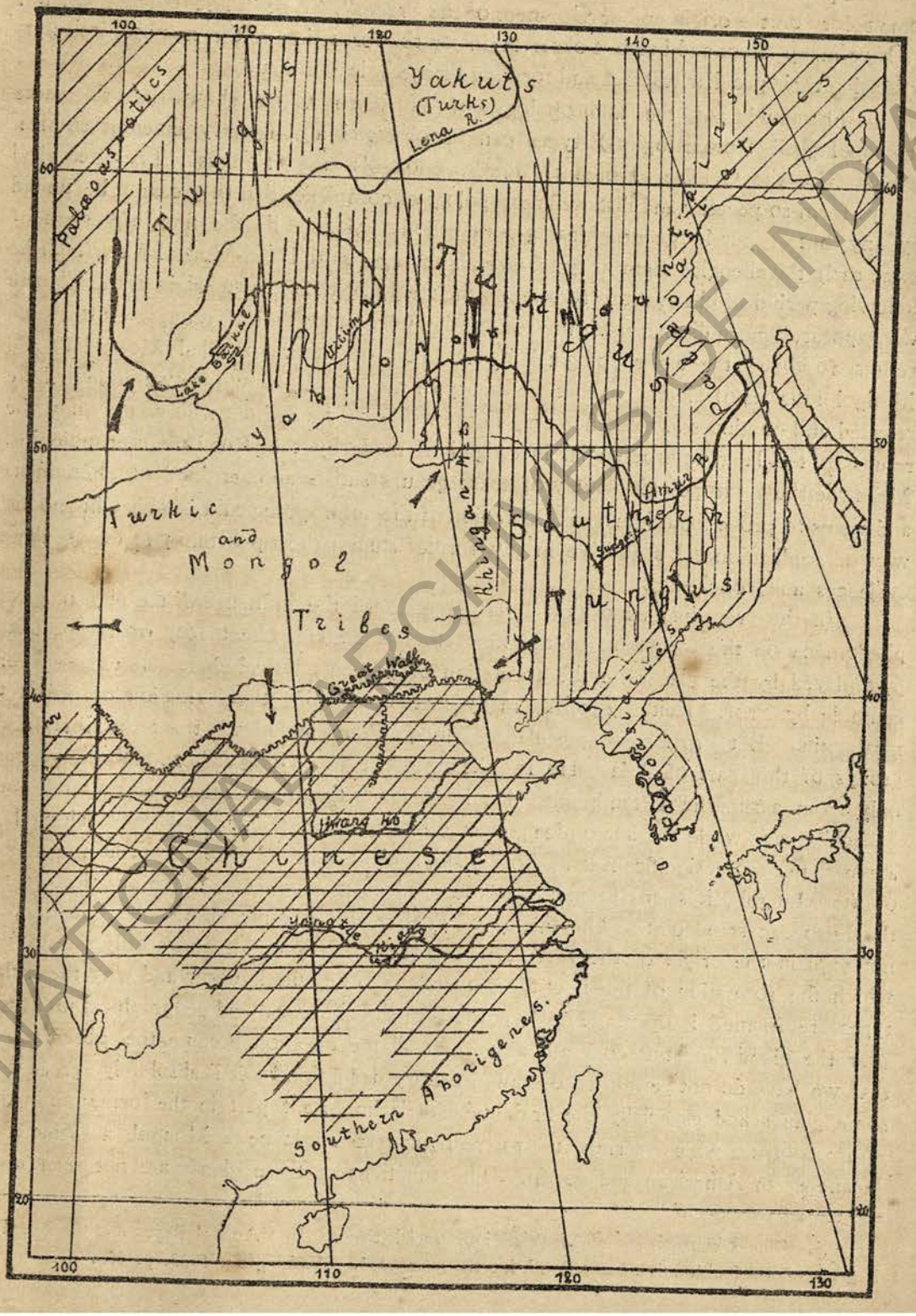
THIRD ETHNICAL MOVEMENT.

(About I-IV Centuries A. D.)



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with the anthropometric instruments. All these factors compose the complexes of culture and ethnographical environment, which influence the formation of ethnical groups.

Up to the present time we have no reliable evidence which can refute or prove some theory on the origin and development of the "races", "types" and other untis, but we have many direct and indirect observations on the formation of the new ethnical units possessing their peculiar features and forming their ethnical milieu.

The study of the anthropology of Northern China shows that the same anthropological (somatological) types can be observed among very different ethnical groups, viz. the Chinese, Koreans, Turcs, Mongols and Tungus. These ethnical groups form so peculiar and distinct anthropological complexes that they cannot be united by any but a purely geographical generalization. Meanwhile the first impression of some early travellers led them to generalize all theseg roups in a "Mongol Race". The following period of observations resulted in the theory of the western origin of the Chinese who appeared more distinct from the rest of the unknown ethnical groups. The same results followed the anthropological investigation of other so-called Mongolian and Mongoloid tribes of Siberia, so that the theory of the united yellow race was little by little rejected and continues its existence only in the works of the authors who do not know the results of the later anthropologial investigations made by the Russian anthropologists. Meanwile the anthropological study of these groups shows another kind of phenomena and seems to prove the original differentiation of the anthropological types, but in another way of application. I shall have in my further studies the opportunity to expose these evidences and conclusions.

In the preceding exposition I have mentioned the influeuce of the physiological phenomena on the formation of the new ethnical units. The theory of the peculiar part played by the glands on the formation of human physical characters exposed, for example by Prof. Keith[1], explains many facts concerning the formation of new ethnical units. But Prof. Keith postulates "Mongols" and includes in this term all ethnical groups of this part of Asia. He is quite right, but his "Mongols" can be homogenous only from a superficial standpoint,—i.e. in so far as they differ from the "White" and "Black" man, while the anatomical, even osteological, distinctions of his "Mongols" are perhaps more significant than those of his racial types. The apparent homogeneity of the Mongols, it seems to me, was the product of ethnographical observations from the European standpoint. The theory of Prof. Keith is quite admissible, but it does not explain the origin of the racial type and their variations,—it shows only the way in which the formation of the new types operates. The question how and why the racial types are formed is open. The hypothesis of the climatical and geographical influence over the gland-functions does not answer at all the question because the observations that we have do not permit us to draw necessary deductions. It is absolutely agreed that some glands and especially the brain take their important part in the formation of the *ethnical types*, which permit us to recognize at a glance a Mongol, a Chinese, a Japanese, an American and so on. The functions of these glands are not seen, only

1. The Differentiation of Mankind into Racial Types. In "Annual Reports of the Board of Regents of the Smithsonian Institution" for the year 1919. Washington. 1922. p. 433. ff.

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their effects, i.e. the culture and psychology of various ethnical groups can furnish this evidence in a vast quantity. Thus the formation of the new units of mankind depends on a function of their psychical and mental abilities and not on the anatomical variations, or in other words the variations of the human units now belongs to the field of physiological and psychological phenomena.

I shall illustrate the present preposition by the following examples. The type Δ may be observed only among all above described ethnical groups, but the Mongol ethnical complex may be observed among the Mongols and partly Manchus. The German ethnical complex may be observed among very few ethnical groups in Europe, but the "German racial characteristics" may be distinguished among Northern Frenchmen, Italians (of Northern Italy), also in Russia and Northern States. The populations of the United States of America are an agglomeration of all ethnical groups of Europe, but the American citizen may be recognised at a glance, as the representative of this new ethnical complex. Finally, the population of Northern Russia is the result of the amalgamation of the Slavs of Central Europe and some ethnical groups of unknown origin speaking various Finnish and Turkic dialects, that forms now an anthropological complex, very complicated from an anthropological standpoint, but the representatives of thisl amalgamation can be recognized as well as some "pure race". Other examples can be found easily, if it should be necessary.

Of course, this proposition is no more than a "working hypothesis", which helped me in my present study on the anthropological (anatomical) differentiations discovered among the Chinese. Now a question arises: what importance has this study?

The results of the present study show anthropological components which now form the Chinese. Thus the importance of this study consists in the furnishing of historical evidences,—namely of which racial elements the Chinese are composed. Therefore from an ethnological standpoint I admit for the anthropology the place of an historical method.

I think that it might not now be answered how and why the anthropologica types exist in a state of amalgamation, but the foregoing analysis has shown that they do exist and always influence the formation of the new ethnical groups. Also it might not be now answered if the anthropological types absorb each other or not, but the successive displacing of one anthropological type by another is known[1] and perhaps may be observed among the Manchus and Chinese of Manchuria. In fact, from the point of view of physical features the Manchus of the present study are not quite the same Manchus as they were before the Mongol invasion into Manchuria and the Chinese of Manchuria are not now the same Chinese as they were when they migrated into Manchuria from China. There are many questions, of first importance, the answers to which can be furnished only by anthropological investigations.

1. The Ossets of Caucasus changed their physical feature under the influence of the neighbouring ethnical groups speaking Turkic dialect and supposed to be of later Asiatic origin.

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CHAPTER VI

CONCLUSIONS.

In the present last chapter I shall formulate the general deductions I have already drawn and some generalizations and suppositions, which can be deduced of the preceding exposition.

§56. The Anthropological Distinctions of the Chinese.

I. The absolute measurements of the Chinese correlate each other. The stature and the head-breadth are the fundamental characters that determine other absolute measurements, except nasal, frontal and auricular characteristics. Some of these charateristics cannot be useful from the point of view of the differentiation of the groups and types because of the insignificant variations.

II. The stature, head-breadth, height of the forehead, also the breadth and length of the nose are fundamental measurements, that form the basis of the anthropo'ogical differentiations. Other measurements can be used also as the characteristics of the differentiated groups, because they correlate the stature and head-breadth.

III. The relative measurements follow the same regularity as the absolute measurements. The indices related to the stature do not show significant differences, but the indices related to the head-breadth, frontal and nasal measurements, also the interzygomatic breadth, show very accentuated differences.

IV. The differences of the Chinese groups are based on the peculiar characters of the anthropological types that compose these groups. The types are not abstract ones, but quite concrete. Also the extreme variations and hypothetic types, which I have supposed to influence the amalgamated series, are concrete too, but the number of individuals which represent these types are generally in an insignificant minority.

Note on Section IV.

All these deductions are based on the supposition that the amalgamation of two and more types creates a great number of individuals who can be characterized by the intermediary characters.

V. The differentiation of the types is based on the stature, cephalic index, nasal index and frontal index. Therefore I admit that *the differentiation of the Chinese cannot be based on a preliminary limited number of measurements and indices.* For example the type Δ and type B are differentiated by the characteristic nasal index and frontal index while the stature and cephalic index of these types are so close that these types cannot be surely distinguished in the fields of correlation (See TablesA and F). The types A and Γ have about the same cephalic index, but very different stature, the variations

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of which sometimes might be considered as "normal dispersion" if the difference of the nasal index and frontal index were not so significant and characteristic for these types. Thus, generally, *a choice of the characteristics to differentiate groups and types must be made unless the analysis of the materials is complete.*

§57. The Method of Interserial Differences and Method of Correlation.

I. The method of interserial differences can be applied to the different (territorial) series of ethnical groups, if these series show the difference of MM. The best results can be drawn if there are neighbouring series. This method can be considered as an analytical method, but the results of application must be always verified by other analytical methods, because this method is based on MM, which sometimes confuse the real anthropological components of the ethnical groups under discussion.

II. The method of correlation must be always applied. If the coefficient has no numerical value or very insignificant one the analysis of the series can be done by superimposing of the fields of correlation of the same characters, but belonging to different groups or series. The insignificant coefficients resulting from the calculation of the amalgamated series composed of many anthropological types have no importance as such, but such coefficients cannot be considered as absolutely meaningless, if other series taken in comparison show significant coefficients or opposite signs. Thus this method may be applied *comparatively* to the analysis of the territorial and ethnical series. For instance the differentiation of the cephalic index and similarity of the stature of two types will show no correlation, but this result can be controlled by the correlation of the stature and cephalic index with other measurements and indices separately. Then, perhaps, there will be discovered some more complicated amalgamations in which may be distinguished two types of the same stature and different cephalic index, and, on the other hand, two types of different stature and similar cephalic index. At the same time all these types may be distinguishable by other characteristics, as for example nasal and frontal indices or colour of the skin and hair, and so on, which characterize four different types.

Note on Section II.

It might be that in the Anthropology the application of this method cannot give at all the high numerical meaning of coefficients, except the cases of the anatomical (constructive) correlation or very simple amalgamations of the types, as for example, one type of very high stature with very high cephalic index and other type of very low stature and very low cephalic index.

III. The calculation of the coefficients of correlation and especially the putting of the individuals in the field of correlation must be done for several pairs of measurements and indices, because the anthropological types in the state of amalgamation can sometimes produce very insignificant differentiation of some characters and very significant differentiation of other ones.

§58. The Ethnographical a d Anthropological Evidences Combined.

I. From an anthropological point of view the Chinese are a complex of different anthropological types, which may be distinguished in an amalgamated state among the

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Chinese, These types are more or less distinguishable among other ethnical groups. The present distribution of these types in the territory furnishes some data for establishing the ethnical movements in the past.

II. The Chinese lived within the limits of West-Central China, whence they moved eastward, northward and southward. The Chinese movement eastward resulted in the amalgamation of the Chinese with the native ethnical groups of this region, i.e. Tungus and Palaeoasiatic groups. The influence of the Chinese type may be observed among the present population of Manchuria and partly Korea. The interaction of the Chinese and other ethnical groups resulted in the continuous amalgamation of the fundamental Tungus and Palaeoasiatic types.

III. The interaction of the Chinese and Mongols resulted in the Mongol movement eastward, northward and westward. Thus the Chinese movement had exclusively important influence on the history of Europe,—the Huns provoked the Great Migration in Europe and removed the German and other ethnical groups who lived at that time in Europe. Also indirectly this movement influenced the failure of the Roman Empire. The Mongol pressure on the east caused probably the Tungus migrations and the formation of the new states. The decline of the Mongol Empire resulted in the formation of two great powers—Russia on the west and Manchu on the east.

This movement interrupted the peaceful trade between Ancient China and the Mediterranean cultural circle.

IV. The Chinese movement eastward and northward was stopped only by the Russian migration. In Manchuria the Chinese movement always grows and forms now the majority of population.

§59. Ethnological Deductions.

I. The anthropological differentiation from the ethnological standpoint cannot explain the real importance of the Chinese among other ethnical groups of Asia. Though the Chinese are not at all homogeneous, they form a peculiar ethnical unit, which acts as such among other ethnical groups. The ethnical unity of the Chinese is based on the cultural complex that produces the peculiar position of the Chinese among other ethnical groups, but it cannot be discovered by the anthropological methods.

II. The anthropological differentiation in the cases of the complexes, as the Chinese are, cannot help in the discovery of the real causes of the interethnical position of some ethnical groups, but the anthropological analysis can be used only as an historical method. It seems to me that at the present time the ethnical differentiation is operated on the basis of the psychological characters, whose external manifestations can be observed in the cultural complexes.

III. The language is not a stable characteristic for ethnical units. As is shown by the example of the Manchu, Mongol and Tungus the languages alter very easily. The ethnical environment is one of the most important factors of the variations, but the variation can occur only in such a case, when the alteration of the language is necessary for selfdefence of the ethnical unit.

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APPENDIX

MM, Max., Min. and LL of the Chinese Groups, Manchus, Koreans and Dahurs.

(Nos. excluded—i.e. Nos. of lists of individual measurements)
are excluded, as shown in §7, Note on the Table IV.

Tables.....I—XIV

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TABLE I.
CHINESE OF SHANTUNG.
Absolute Measurements.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	185	1838	1507	1665.5	...
Height of the head... ...	180	156	116	134.10	83,109,122,166,171.
Length of the arm	181	844	661	730.6	5,14,81,148.
Length of the upperarm ...	181	395	269	310.6	5,14,81,148.
Length of the forearm ...	182	262	192	236.8	5,81,148.
Length of the hand... ...	181	221	160	189.5	5,14,81,148.
Length of the leg	185	970	760	854.0	...
Length of the thigh.. ...	184	474	313	390.3	92.
Height of the kneejoint ...	184	540	394	463.9	92.
Length of the trunk ...	178	652	488	563.5	69,78,81,88,89,121,168.
Length of the head... ...	184	205	172	188.27	122.
Breadth of the head.. ...	184	162	135	147.68	122.
Frontal diameter	184	119	95	104.81	30.
Interzygomatic breadth ...	184	153	125	140.77	134.
Gonial diameter ...	185	125	94	109.28	...
Physiognom. leng. of the face	184	215	169	191.64	119.
Anatom. length of the face..	184	134	98	117.72	77.
Height of the forehead ...	183	93	59	74.07	77,119.
Length of the nose... ...	183	50	34	41.57	34,77.
Breadth of the nose... ...	185	47	29	37.12	...
Extern. interocul. breadth ...	184	108	85	95.27	
Intern. interocul. breadth ...	184	40	27	34.29	
Ocular length	185	35	25	30.49	...
Length of the ear	183	72	52	63.73	13,89.
Breadth of the ear	183	39	27	32.52	13,89.

TABLE II.
CHINESE OF SHANTUNG.
Relative measurements.

Indices	N	Max.	Min.	M	Nos. excluded.
Length of the arm.. ...	181	49.01	39.06	43.83	5,14,81,148.
Length of the upperarm ...	181	48.64	39.41	42.29	ibid.
Length of the forearm ...	181	35.22	26.48	32.42	ibid.
Length of the hand. ...	181	29.50	22.68	25.33	ibid.
Length of the leg	185	57.87	46.68	51.31	...
Length of the trunk ...	178	38.47	28.62	33.86	69,78,81,88,89,121,168.
Cephalic index	184	89.53	70.44	78.51	122.
Height of the head by length	180	83.89	62.50	71.17	83,109,122,166,171.
Height of the head by breadth	180	100.00	77.56	90.82	ibid.
Frontal index	183	88.12	54.13	70.77	30,119.
Physiognom. facial index...	182	84.21	62.33	73.45	72,119,134.
Anatomical facial index ...	183	97.04	71.72	83.99	72,134.
Gonial index	184	85.82	64.83	77.87	134.
Nasal index..	184	118.18	69.09	89.86	34.
Auricular index.	183	60.00	41.43	51.02	13,89.

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TABLE III.
CHINESE OF CHIHLI.
Absolute Measurements.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	114	1874	1565	1678.9	...
Height of the head... ...	113	154	121	135.44	57.
Length of the arm... ...	111	826	621	730.0	57,88,92.
Length of the upperarm ...	108	349	275	307.4	24,44,57,88,92,110.
Length of the forearm ...	104	266	196	236.2	24,27,44,57,80,88,92,
Length of the hand ...	104	253	151	186.5	110,113.
Length of the leg	112	980	777	862.0	14,56.
Length of the thigh ...	112	484	327	389.3	14,56.
Height of the kneejoint ...	112	541	417	471.6	14,56.
Length of the trunk ...	110	631	510	572.9	24,50,53,56.
Length of the head... ...	113	200	168	186.90	60.
Breadth of the head ...	113	161	138	149.21	60.
Frontal diameter	114	119	92	104.49	...
Interzygomatic breadth ...	113	155	126	140.13	114.
Gonial diameter	114	125	96	109.18	...
Physiognom. length of face	112	212	173	192.76	3, 37.
Anatom. length of the face	113	135	105	117.78	3.
Height of the forehead ...	112	88	58	76.09	3, 37.
Length of the nose ...	113	51	36	41.73	53.
Breadth of the nose ...	113	42	32	37.31	53.
Extern. interocul. breadth ...	113	106	80	96.13	10.
Intern. interocul. breadth ...	113	41	27	34.29	10.
Ocular length	113	36.5	25.5	30.92	10.
Length of the ear	113	76	52	64.66	11.
Breadth of the ear	113	38	27	32.50	11.

TABLE IV.
CHINESE OF CHIHLI.
Relative measurements.

Indices	N	Max.	Min.	M.	Nos. excluded.
Length of the arm ...	111	48.26	39.69	43.52	57,88,92,
Length of the upperarm ...	108	45.56	37.53	42.09	24,44,57,88,110,92.
Length of the forearm ...	104	34.10	28.89	32.35	24,57,44,27,92,55,80,88,
Length of the hand ...	104	30.63	23.02	25.48	110,113.
Length of the leg... ...	112	55.51	47.73	51.36	14,56.
Length of the trunk ...	110	37.55	29.88	34.11	24,50,53,56.
Cephalic index	113	91.07	71.13	79.92	60.
Height of the head by length	112	84.15	65.41	72.53	57,60.
Height of the head by breadth	112	102.74	81.17	90.81	57,60.
Frontal index	113	87.12	50.91	71.97	3.
Physiognomical facial index	111	83.80	54.45	73.01	3, 37,114.
Anatomical facial index ...	111	97.67	73.29	83.78	ibid.
Gonial index	113	88.03	68.57	77.54	114.
Nasal index	113	110.81	70.83	90.02	53.
Auricular index	113	61.67	41.43	50.34	11.

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TABLE V.
CHINESE OF MANCHURIA.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	96	1815	1518	1650.4	...
Height of the head ...	94	149	120	133.64	3, 71
Length of the arm ...	92	808	641	724.8	12,13,57,59.
Length of the upperarm ...	87	345	266	308,2	3,12,13,14,57,58,59,60.67.
Length of the forearm ...	87	267	197	235.2	ibid.
Length of the hand ...	87	227	158	183.5	ibid.
Length of the leg... ...	94	942	747	842.9	ibid.
Length of the thigh ...	94	449	303	383.1	ibid.
Height of the kneejoint ...	94	548	393	459.4	ibid.
Lenght of the trunk ...	92	650	498	571.7	6,17,18,67.
Length of the head ...	96	203	163	183.57	...
Breadth of the head ...	96	170	137	153.57	...
Frontal diameter	96	116	96	105.79	...
Interzygomatic breadth ...	96	155	130	142.14	...
Gonial diameter	96	122	95	109.56	...
Physiognom. lengthof the face	96	219	176	191.41	...
Anatom. length of the face	96	132	106	117.85	...
Height of the forehead ...	96	90	58	73.68	...
Length of the nose ...	95	51	34	42.39	11.
Breadth of the nose ...	95	44	31	37.02	11.
Extern. interocul. breadth...	95	104	87	96.09	16.
Intern. inerocul. breadth ...	95	40	26	33.61	16.
Ocular length	95	36.5	28.5	31.24	16.
Length of the ear... ...	96	78	54	63.64	...
Breadth of the ear ...	96	40	28	32.74	...

TABLE VI.
CHINESE OF MANCHURIA.
Relative measurements.

Indices	N	Max.	Min.	M	Nos. excluded.
Length of the arm ...	92	49.54	39.37	43.86	12,13,57.61.
Length of the upperarm ...	87	44.82	38.96	42.39	3,12,13,14,57,58,59,60,61.
Length of the forearm ...	87	35.32	29.14	32.42	
Length of the hand ...	87	28.96	22.99	25.31	
Length of the leg... ...	94	54.15	47.50	50.96	57,80.
Length of the trunk ...	92	38.09	28.98	34.65	6,17,18,67,
Cephalic index	96	96.43	73.98	83.64	...
Height of the head by length	94	82.25	65.76	72.93	3,71.
Height of the head by breadth	94	98.01	75.93	87.16	3,71.
Frontal index	96	84.90	53.57	69.78	...
Physiognomical facial index	96	86.11	63.79	74.16	...
Anatomical facial index ...	96	95.56	70.47	82.96	...
Gonial index	96	86.92	67.38	77.13	...
Nasal index	95	110.00	65.96	87.98	11.
Auricular index	96	61.90	42.31	51.64	...

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TABLE VII.
TOTAL CHINESE.
Absolute Measurements.

Measurements	N	Shantung	Chihli	Manch.	Max.	Min.	L	M
Stature	395	1665.5	1678.9	1650.4	1874	1507	367	1665.7
Height of the head ...	387	134.10	135.44	133.64	156	116	40	134.38
Length of the arm ...	386	730.6	730.0	724.8	844	621	223	728.7
Leng. of the upperarm	376	310.6	307.4	308.2	395	266	129	309.1
Length of the forearm	373	236.8	236.2	235.2	267	192	75	236.1
Length of the hand ...	372	189.5	186.5	183.5	253	151	102	187.3
Length of the leg ...	391	854.0	862.0	842.9	980	747	233	853.6
Length of the thigh ...	390	390.3	389.3	383.1	484	303	181	388.3
Height of the kneejoint	390	463.9	471.6	459.4	548	393	155	465.1
Length of the trunk ...	380	563.5	572.9	571.7	652	488	164	568.2
Length of the head ...	393	188.27	186.90	183.57	205	163	42	186.73
Breadth of the head ...	393	147.68	149.21	153.71	170	135	35	149.55
Frontal diameter ...	394	104.81	104.49	105.79	119	92	27	104.96
Interzygomatic breadth	393	140.77	140.13	142.14	155	125	30	141.09
Gonial diameter ...	395	109.38	109.18	109.56	125	94	31	109.32
Physio. leng. of the face	392	191.64	192.76	191.41	219	169	50	191.90
Anatom. leng. of the face	393	117.72	117.78	117.85	135	98	37	117.77
Height of the forehead	391	74.07	76.09	73.68	93	58	35	74.30
Length of the nose ...	391	41.57	41.71	42.39	51	34	17	41.81
Breadth of the nose ...	393	37.12	37.31	37.02	47	29	18	37.14
External interoc. breadth	392	95.27	96.13	96.09	108	80	28	95.70
Internal interoc. breadth	392	34.39	34.29	33.61	41	26	15	34.12
Ocular length ...	393	30.49	30.92	31.24	36.5	25	11.5	30.79
Length of the ear ...	392	63.73	64.66	63.64	78	52	26	63.98
Breadth of the ear ...	392	32.52	32.50	32.74	40	27	13	32.55

TABLE VIII.
TOTAL CHINESE.
Relative Measurements

Indices	N	Shan.	Chih.	Man.	Max.	Min.	L	M
Length of the arm ...	384	43.83	43.52	43.86	49.54	39.06	10.48	43.75
Length of the upperarm	376	42.29	42.09	42.39	48.64	37.53	11.11	42.26
Length of the forearm	372	32.42	32.35	32.42	35.32	26.48	8.84	32.37
Length of the hand ...	372	25.33	25.48	25.31	30.63	22.68	7.95	25.37
Length of the leg ...	391	51.30	51.36	50.96	57.87	46.68	11.19	51.24
Length of the trunk	380	33.83	34.11	34.65	38.47	28.62	9.85	34.12
Cephalic index ...	393	78.51	79.92	83.64	96.43	70.44	25.99	80.17
Hei. of the head by leng.	386	71.17	72.53	72.93	84.15	62.50	21.65	72.41
Hei. of the head by bread.	386	90.82	90.81	87.16	102.74	75.93	26.81	89.92
Frontal index ...	392	70.77	71.97	69.78	88.12	50.91	37.21	70.62
Physiognomi. facial ind.	389	73.45	73.01	74.16	86.11	54.45	31.66	73.55
Anatomical facial index	390	83.99	83.78	82.96	97.67	70.47	27.20	83.67
Gonial index	393	77.87	77.54	77.13	88.03	74.83	23.20	77.59
Nasal index	392	89.86	90.02	87.98	118.18	65.96	52.22	89.45
Auricular index ...	392	51.02	50 34	51.64	61.90	41.43	20.47	59.97

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TABLE IX.
MANCHUS.
Absolute measurements.

Measurements	N	Max.	Min.	L	M	Nos. excluded.
Stature	81	1718	1513	205	1630.9	...
Height of the head.. ...	76	153	119	34	132.64	3,11,52,75,78.
Length of the arm.. ...	75	822	622	200	706.7	6,8,25,44,54,78.
Length of the upperarm ...	75	366	254	112	294.4	ibid.
Length of the forearm ...	75	288	185	103	231.0	ibid.
Length of the hand.	75	222	158	64	181.4	ibid.
Length of the leg... ...	54	916	783	133	832.0	47-52,57-76,78-81.
Length of the thigh	54	432	333	99	374.7	ibid.
Height of the kneejoint. ...	54	507	410	97	456.3	ibid.
Length of the trunk ...	47	591	467	124	547.3	25;44-52;57-76;78-81.
Length of the head ...	81	194	170	24	181.94	...
Breadth of the head ...	80	161	143	18	151.31	3.
Frontal diameter	80	118	97	21	105.35	3.
Interzygomatic breadth ...	79	150	131	19	140.28	62,69.
Gonial diameter	80	130	97	33	110.47	69.
Physiognom. length of the face	79	202	170	32	188.29	62,70.
Anatom. length of the face	80	132	104	28	117.67	62.
Height of the forehead ...	80	82	56	26	70.17	70.
Length of the nose ...	81	53	37	16	45.38	...
Breadth of the nose. ..	81	45	33	12	37.86	...
Extern. interoc. breadth ...	81	...	...	...	93.46	...
Intern. interoc. breadth ...	81	41	28	13	34.10	
Ocular length	81	35	25	10	29.68	...
Length of the ear... ...	81	77	54	23	64.95	..
Breadth of the ear... ...	81	40	25	15	33.15	...

TABLE X.
MANCHUS.
Relative measurements.

Indices	N	Max.	Min.	L	M	Nos. excluded.
Length of the arm ...	75	49.53	39.34	10.19	43.28	6,8,25,44,54,78.
Length of the upperarm.	75	46.35	38.42	7.39	41.62	ibid.
Length of the forearm ..	75	37.73	27.87	9.84	32.68	ibid.
Length of the hand ...	75	29.92	22.80	7.12	25.75	ibid.
Length of the leg ...	54	56.24	49.16	7.08	51.58	47-52,57-76,78.
Length of trunk ...	47	36.55	28.86	7.69	33.84	25,44-52,57-76,78-81
Cephalic index ...	80	89.94	76.12	13.82	83.52	3.
Height of the head by leng.	76	83.15	63.33	19.82	72.86	3,11,52,75,78.
Height of the head by bread.	76	98.71	78.48	20.23	87.47	ibid.
Frontal index	77	82.83	50.90	31.93	67.08	6,62,66,70.
Physiognomical facial index	78	84.71	66.83	17.88	74.57	62,69,70.
Anatomical facial index...	79	95.56	74.31	21.25	83.87	62,69,
Gonial index	80	88.65	68.80	19.85	78.66	69.
Nasal index	81	102.63	62.92	39.71	83.02	...
Auricular index	81	61.67	39.73	21.94	52.32	...

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TABLE XI.
KOREANS.
Absolute Measurement.

Measurements	N	Max.	Min.	L	M	Nos. excluded.
Stature	142	1752	1509	243	1628.8	...
Height of the head ...	137	152	118	34	134.50	69,93,110,129,132.
Length of the arm ...	134	805	645	160	715.4	16,23,36,64,67,87,106,128.
Length of the upperarm	129	345	269	76	300.6	10,16,23,36,64,
Length of the forearm ...	129	283	195	88	231.2	87,106,105,101,
Length of the hand ...	129	219	155	64	183.6	121,109,128.
Length of the leg ...	141	905	741	164	819.5	128.
Length of the thigh ...	140	436	317	119	378.8	128,12.
Height of the kneejoint ...	140	495	367	128	440.5	12,128.
Length of the trunk ...	140	625	485	140	553.4	12,124.
Length of the head ...	141	200	165	35	183.93	91.
Breadth of the head ...	141	166	143	23	153.72	91.
Frontal diameter	141	120	95	25	106.30	111.
Interzygomatic breadth ...	141	157	130	27	143.76	111.
Gonial diameter	140	128	99	29	112.48	83,131.
Physiogn. leng. of the face.	141	219	174	45	194.67	111.
Anatom. leng. of the face..	141	136	103	33	117.17	111.
Height of the forehead ...	141	92	62	30	77.51	111.
Length of the nose ...	141	54	31	23	40.79	111.
Breadth of the nose ...	141	43	31	12	37.33	111.
Extern. interoc. breadth ...	142	105	82	23	95.29	...
Intern. interoc. breadth ...	142	43	28	15	33.94	...
Ocular length	142	34.5	27	7.5	30.67	...
Length of the ear ...	141	76	50	26	63.93	35.
Breadth of the ear ...	141	36	26	10	30.74	35.

TABLE XII.
KOREANS.
Relative measurements

Indices	N	Max.	Min.	L	M.	Nos. excluded.
Length of the arm ...	134	48.43	40.47	7.96	43.94	16,23,36,64,67,87,106,128.
Length of the upperam	129	44.44	38.74	5,70	42.01	10,16,23,36,64,67,
Length of the forearm	129	35.01	28.99	6.92	32.31	87,101,105,106,
Length of the hand ...	129	28.66	22.96	5.70	25.67	109,121,128.
Length of the leg ...	141	53.41	46.16	7.25	50 30	128.
Length of the trunk ...	140	37.77	29.94	7.83	33.98	12,124.
Cephalic index... ...	141	93.10	74.48	18.62	83.69	91.
Height of the head by leng.	137	82.86	65.75	17.11	73.16	65,93,110,129.132.
Height of the head by bread.	136	97.95	77.36	19.59	87.57	65,91,93,110,129,132,
Frontal index	140	91.67	57.41	34.26	72.87	91,111.
Physiognomical facial index	140	83.70	67.16	16.54	73.96	ibid.
Anatomical facial index	140	94.20	69.48	24.72	81.55	ibid.
Gonial index	139	88.32	67.57	20.75	78.10	111.
Nasal index	141	125.81	64.00	61.81	92.49	111.
Auricular index ...	141	62.50	37.84	24.66	48.26	35.

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TABLE XIII.
DAHURS.
Absolute measurements.

Measurements	N	Max.	Min.	L	M	Nos. excluded.
Stature	49	1750	1505	245	1643.6	...
Height of the head	45	144	119	25	133.20	18,19,25,41.
Length of the arm	42	786	660	126	719.0	
Length of the upperarm ...	42	364	258	106	300.9	2,10,24,25,
Length of the forearm ...	42	272	204	68	235.2	44,45,48.
Length of the hand	42	205	151	54	182.9	
Length of the leg	46	952	777	175	855.4	
Length of the thigh	46	463	327	136	388.2	38,40,49.
Height of the kneejoint ...	46	521	427	94	467.2	
Length of the trunk	45	589	471	118	540.8	2,40,44,49.
Length of the head	49	198	171	27	184.59	...
Breadth of the head	49	165	135	30	148.86	...
Frontal diameter	49	118	97	21	105.24	...
Interzygomatic breadth ...	49	151	131	20	140.01	...
Gonial diameter	49	126	100	26	110.53	...
Physiognomical length of the face	49	212	172	40	193.37	...
Anatomical length of the face	49	129	102	27	118.06	...
Height of the forehead ...	49	91	64	27	75.45	...
Length of the nose	49	50	34	16	42.65	...
Breadth of the nose	49	42	31	11	36.14	...
External interocular breadth ...	49	101	85	16	91.43	...
Internal interocular breadth ...	49	38	29	9	32.78	...
Ocular breadth	49	33	25.5	7.6	29.33	...
Length of the ear	49	73	57	16	66.76	...
Breadth of the ear	49	38	27	9	32.92	...

TABLE XIV.
DAHURS.
Relative measurements.

Indices.	N	Max.	Min.	L	M.	Nos. excluded.
Length of the arm ...	42	48.77	42.21	6.56	43.74	
Length of the upperarm ...	42	46.98	38.01	8.97	41.82	10,21,24,25,
Length of the forearm ...	42	37.67	29.56	8.11	32.69	44,45,48.
Length of the hand ...	42	29.57	20.91	8.66	25.47	
Length of the leg... ...	46	56.04	49.70	6.34	52.11	38,40,49.
Length of the trunk ...	45	35.55	28.04	7.51	32.99	2,40,44,49.
Cephalic index	49	93.75	73.77	19.98	81.41	...
Height of the head by length	45	83.63	63.78	19.85	72.37	18,19,25,41.
Height of the head by breadth	45	95.36	76.43	18.93	88.73	ibid.
Frontal index	49	91.00	62.93	28.07	79.43	...
Gonial index	49	85.71	73.53	12.18	78.92	...
Physiognomical facial index	49	84.88	63.68	21.20	72.40	...
Anatomical facial index ...	49	96.24	69.86	26.38	84.38	...
Nasal index	49	111.43	68.75	42.68	85.31	...
Auricular index	49	59.64	41.54	18.11	50.15	...

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Approxi[illegible]ate Ethnographical Map.

Yellow	Chinese.	Green	Koreans.
Blue	Turkic and Mongo[illegible]ibes.	Violet	Tungus
Orange	Manchus.	Red	Tungus, Solons Dahurs, Goldi.
▬▬	Political Boundary		(Ethnical groups of transitory belt).

(S.M. Shirokogoroff "Anthropology of Northern China")

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